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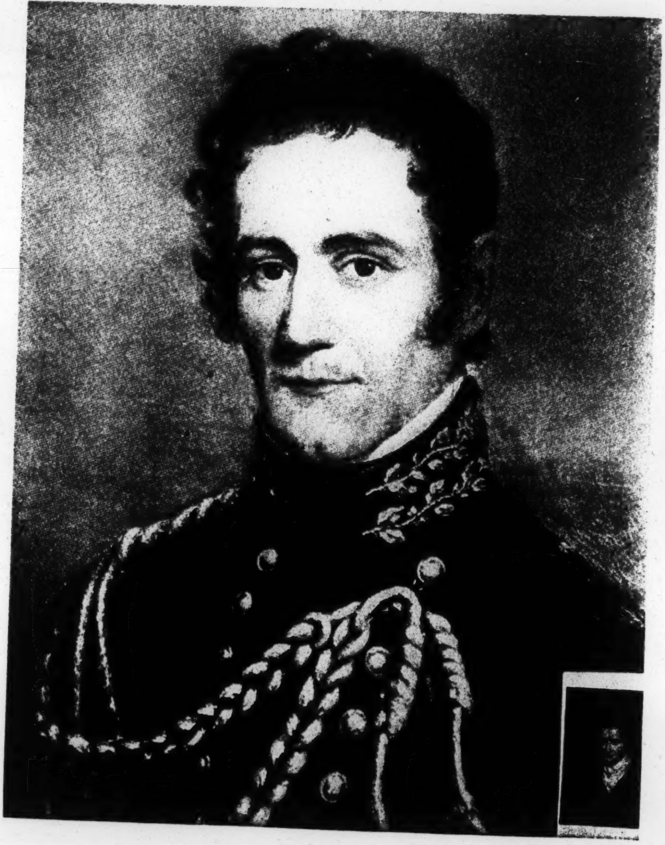

JOSEPH LOVELL

⟦1788-1836⟧

[From Dubovrgdiev: Aphorismi Prognostici Hippocratis, Romae, 1659.]

ANNALS OF MEDICAL HISTORY

New Series, Volume V January, 1933 Number 1

AN INTRODUCTION TO THE HISTORY OF WOMEN IN MEDICINE*

I. MEDICAL WOMEN BEFORE CHRISTIANITY

By KATE CAMPBELL HURD-MEAD, M.D.

HADDAM, CONN.

Eastern Nations

(Persians, Assyrians, Chinese)

IT is a long time since enlightened people have believed that Eve was made from a rib of Adam, but not so long since Eve determined to be independent of Adam and to assume certain roles congenial to her mentality. That she was born with two-hundred millions of ovules to provide for all future generations has also been discarded along with many another theological belief as to the purposes for which she was created.

It is not, however, seriously doubted that males and females differ in certain protoplasmic cells which are capable of almost infinite proliferation and specialization, and that this diversification produces different talents in both sexes. From the days of our little tarsial ancestor, neither squirrel nor monkey, handwork acquired a new significance when coordinated with mental development, and after many thousands of years there was created a human mother with skill in using her faculties for the alleviation of the suffering not only in her own family but among her neighbors. With the development of sympathy and altruism in both men and women there arose a religious instinct which foreshadowed good and bad spirits in the air around about, and from this it was but a step to priests and priestesses who could propitiate the bad gods and gain the favors of the good gods in the sea and air and trees. Man then became the muscular hunter of food, strong and brave, while woman busied herself with the care of the helpless and the preparation of their clothing and nourishment. We have deduced this evolution of mankind from a study of aborigines in many lands who are still living like the cannibals of the stone age, still worshipping natural objects, still believing in demons, eating the hearts of their enemies as of wild beasts, bathing their own heads in the blood and brains of the slain, and sprinkling their doorposts with blood to cure their children from unseen but very real pain. But even in the twentieth century among such people it is the women who tend women in labor, gather herbs for easing pain, suck a sore spot until it bleeds, and shout the incantations for exorcising its demon. Medicine men seem useful only when a louder noise is needed to scatter demons, or when greater strength than that of medicine women is indispensable for kneading a patient.

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*To be completed in six parts.

Although many thousands of years were required to evolve deities with human personality from the natural objects or animals or extraordinary men and women of prehistoric times, it could not have taken a mother long to learn that her crying baby needed something more than food, nor that what she could neither see, touch, nor hear was more to be dreaded than anything human. The silence and stillness of death must have been much more mysterious to her than even to us. Any great animal, any bad dream, any overwhelming phenomenon of nature such as thunder, earthquakes, floods or drought, led her to seek protection behind some rock or tree or in a cave where the beating of her own heart must have seemed like some spirit answer to quiet her fears. As language and picture writing developed, signs and emblems took the place of actual gods until a statue seemed to be a deity in the form of a beast or a heroic king, and the larger the effigy the greater was its power. Such being the case, it is easy to understand why goddesses were as necessary as gods since a world or a heaven would be unthinkable without wives and mothers. Therefore heavenly mothers came to be the goddesses of healing, and they generally treated a patient without consultation with the gods.

Payment for their services these superhuman beings demanded in the form of sacrifices such as food or flowers, or burnt offerings the ashes of which might float down stream to an unknown sea. Gradually in imagination these gods and goddesses became more human, so that whether at the outset they took the form of lions or elephants or bulls, in the course of time even visions of dead ancestors became so real that the whole air was full of spirits whose voices were heard in the rustling of the leaves, the murmuring of the waves, or the raging of the storm. And generally it was women who quietly worshipped these spirits while watching by a wounded husband, a dying friend, or a mother in labor.

Sir Arthur Evans[1] has said that the rites by which medicine men of primitive races the world over are able to shut up gods or spirits in a material object show how easily the idea of attracting or compelling such spiritual occupation must have arisen. A proof of this is found in the ideas attaching to the rude stone monuments placed over graves, a place of indwelling for the spirit of the occupant of a tomb or his followers and slaves before whom offerings of food and drink were placed.

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[1] Evans, Sir Arthur. The Mycenaean Tree and Pillar Cult, 1901, p. 21.

Although it is impossible for us to imagine ourselves roaming with the cave men after the long glacial ages, watching and wondering about the birth of their babies, or about the hatching of eggs, the flight of birds, the raging of the tempest, we are still awed by such phenomena as earthquakes, eclipses, and floods. Many intelligent people still visit clairvoyants for interpretations of dreams, and few physicians would willingly separate religion from medicine in their practice and depend entirely upon themselves or their drugs for healing their patients. It is, therefore, small wonder that in the South Sea Islands where long ago Roman Catholic missionaries taught the natives the religion of Christ, the cross is today worshipped as "mother" among the natives, whose healers, bone-setters, midwives, and pediatrists are always women.

It has frequently been said that there is little difference in the medicine of aboriginal peoples anywhere. It has been found that the ancient Aztecs, the American Indians, the inhabitants of some of the islands of the Pacific and natives of African jungles always employed women healers who worked by manipulations or hot drinks or baths or by the exorcisms of evil spirits. In these countries the conditions of life were like those in Greece and Sumeria and Egypt in the stone and bronze ages. In case of intense headache flint chisels and stick drills were used for opening the skull and drawing out the demon. Hot stones checked bleeding, and stone knives opened abscesses. The instruments found in Pompeii and in prehistoric graves all over the world are much the same in shape—bronze pincers and probes, stone lancets, bone needles, animal sutures, bronze dilators and traction forceps—such were the instruments used by the wife of Moses and the women of Homer's day who were surgeons as well as midwives and general healers of the sick. Conditions among the people of remote country places in Greece today that concern agriculture or medicine differ very little from those of their remote ancestors, and medical traditions are handed down from mother to daughter as in the time of the Trojan wars.

Mary McKibbin Harper[1] tells us that many of the California Indians still use the old incantations and medicine dances. A patient may be taken by the medicine woman to a lonely place in the woods where she is given a sweat and a pummelling and then the disease is sucked from her mouth and placed in a basket to be taken home. According to the psychology of these Indians pain is visualized by color and length, and though the medicine women have no scientific ideas as to the treatment of pain the medicine men have even less of helpfulness. Schoolcraft[2] tells us that when the Indian women are about to be confined they go off alone and deliver themselves beside a pool of water if possible, or like the Esquimaux women, under some improvised shelter, or in a wayside ditch like the mother of

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[1] Harper, M. McK. *Med. Woman's J.*, p. 286, 1928.

[2] Schoolcraft, H. R. Personal Memoirs of a Residence of Thirty Years with the Indian Tribes, 1851.

Virgil, but if the birth is delayed native women sometimes successfully perform version by external manipulations. There is, however, no scientific care of the patient such as was taught by Hippocrates, more than two thousand years ago.

Thus we find that among the constantly dwindling aborigines of the world there are the same crude religious beliefs of primitive humanity. Women are still the natural healers, the only obstetricians, the bonesetters, the gatherers of medical herbs, and as priestesses of their gods and representatives of their goddesses they are considered almost divine. Why in the process of evolution and education during historic times women as physicians became subordinate to men and fell from this high estate it is difficult to say, but nevertheless it will be seen that whether conspicuously in the public eye or not, women have continued to train themselves in all possible ways down the centuries for the relief of their suffering friends and neighbors as well as for their own families. Possibly among the chromozomes of women there is one denoting excessive self-effacement and timidity, but this is a mere guess. There have been distinctly periodic waves of influence in the past which have brought medical women out of obscurity into the public eye as the normal physicians of women and children, and these waves must have been due to a sort of "geologic upheaval" of women collectively at times of great economic distress followed by a long subsidence and more or less inertia.

However this may be, we can not believe that the mere study of scholastic philosophy and of astrology and even of the "Seven Liberal Arts," geometry, logic, music, et cetera, could have made a better doctor of a monk than bedside study of a patient made of women. While priests may have been praying the medical women and priestesses were massaging a painful joint, trying to ease the pains of childbirth, washing the sores of lepers, bleeding and cupping, setting bones, and gathering well-known remedies for stomachache. It was probably the work of women to find the healing springs while it became men's work to repeat aphorisms from Hippocrates and look to the stars for help in an emergency.

As to female divinities history shows us that in every part of the world it was a goddess who was sought in time of sickness whether she took the form of a serpent, a cow, or a lioness, or became Mary, the Mother of Jesus. Among the Aztecs, for instance, Cihuacoatl (or Quetzalcoatl) took the form of a serpent and her statue was painted with serpent's blood. At her festival eight live snakes were swallowed by various devotees, and to snake symbols ritualistic dances were performed with prayers for rain or for health. The snake has always been associated with the gods of healing whether among the American Indians or the early Greeks or the rebellious Hebrews in the time of Moses. Apollo's wand and modern medical insignia have coiled serpents on the staff—Esculapius and Hygeia were never seen without such a wand. The Garuda, or messenger of the gods of Siam and the Far East sails through the air on a two-headed snake. The holy "Naga" of the Brahmins is also a many-headed snake,[1] and from China to the midnight sun of Scandinavia great dragons have been the medical divinities thus disguised, while from the Garden of Eden to the snake charmers of today the snake has been considered as the embodiment of wisdom.

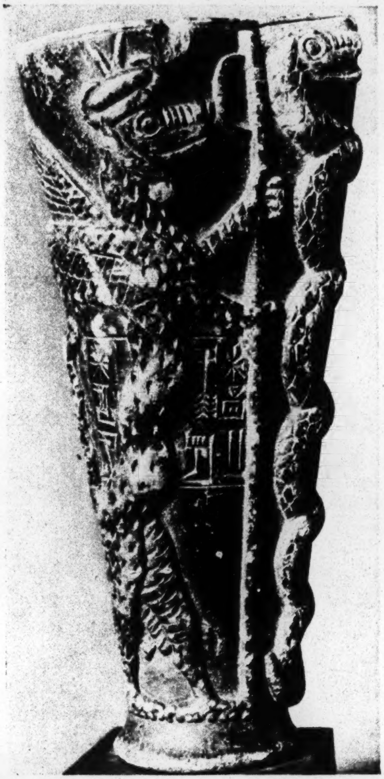

FIG. 1. SERPENT WORSHIP OF THE ANCIENT SUMERIANS OR BABYLONIANS (3500 B.C.). PROBABLY USED AS A CUP FOR A HEALING DRINK OR FOR AN OFFERING TO THE GOD OR GODDESS OF HEALING. (LOUVRE.)

We shall find that there were certain serpents worshipped as female deities of healing and there were also many other kinds of goddesses in all religions to whom altars were raised for relief of physical suffering and especially for a cure of sterility, the bane of women in all ages. Among the ancient Celts, for example, there were several female divinities of fertility and health. Their ceremonies were held out of doors, within a circular en-

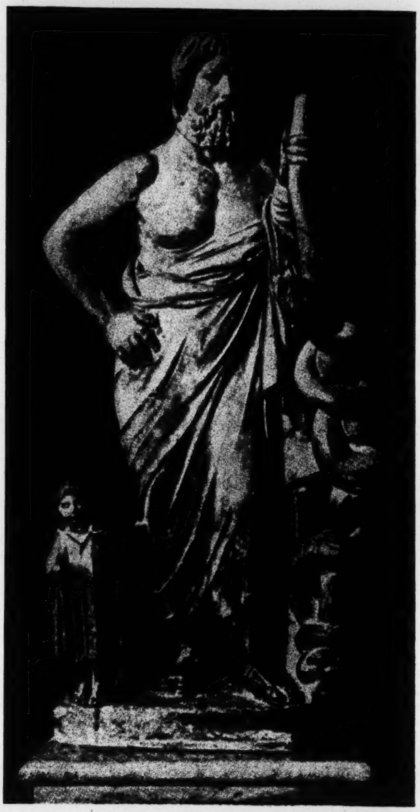

FIG. 2. ESCULAPIUS OF THE GREEKS, WITH SERPENT. (PALAZZO MASSINO, ROME.)

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[1] Serpents have been called the ancestors of such great traditional heroes as Aeneas, Alexander, Hindu gods and Scandinavian warriors. The Scythians believed that their nation sprang from a half-serpent mother and Zeus. Serpents were taken as pets by rulers like Tiberius of Rome and by the Abyssinian potentates. Ruskin says that snakes were clothed with the power of the dust and are the symbol of death, for it was believed that since a snake could shed its skin and live there could be no death where there was even an effigy of a reptile. See "The Ubiquitous Trail of the Serpent in Literature, Faith and Art," by Lewis Dayton Burdick (1914).

closure where troublesome questions of law and religion were submitted to learned men but medical questions to priestesses. To the Celts the mistletoe and the oak provided remedies for all diseases but especially for sterility, epilepsy, and poisons. Hot springs and sacred herbs were dedicated to gods and goddesses who were equal in knowledge and wisdom. Sirona and Sul, male and female, were the chief healers, but Brigit, the "shining one" was the special goddess of fire and fertility like the lionness-headed goddess of Egypt. Fires burned continually on the altars of these divinities, and much of the folk-lore of Ireland, Wales, and ancient Gaul is founded on the imagination of these ancient Celts and their so-called Druid religion. One of the queens of Ireland, Macha of the golden hair, was a priestess of this cult. She is said to have founded a hospital in the year B.C. 600 which lasted six hundred years. The sole document in the Irish language ascribed to St. Patrick is a hymn in which he invokes the Trinity and all the powers of Nature against the enchantments of these mythical "Druid" priestesses who refused to accept the Christian religion.

As to the beginnings of medical teaching within historic times authorities differ widely. Formerly it was thought that the Minoan civilization in the Greek archipelago, perhaps four thousand years ago, was the first in which any scientific investigations were made as to medical treatment or diagnosis, but now the date is being pushed far back into the hazy past of the Assyrians among whom women were considered honorable healers at least six thousand years ago, and from whom new theories of disease were carried by the merchants, through commerce, to the Phoenicians, Egyptians, and Greeks, as we shall soon learn. It is said[1] that as early as B.C. 1500 there were women students at the medical school of Heliopolis, in Egypt, where Moses and his wife probably studied. These women cared for the women patients at the free dispensaries and practiced among the rich in their palaces, and in the birth-houses connected with the temples. In fact, medical women in Egypt were generally educated as priestesses and were allowed to perform surgical operations, prescribe medicines, preside at religious rites, and officiate at the birth of babies.

India. On the other hand, it has been held by certain scholars that India was the cradle of medicine and that Hippocrates studied there and learned how to perform surgical operations, including laparotomies, caesarian sections, trephining, and to make inoculations for smallpox. Neuburger[2] says that the Hindus understood the use of seven hundred drugs as well as rules for diet and medicinal baths, the value of exercise, etc. Benares was the center of the medical cult, and trained physicians were the priests as well as guardians of the sick.[3] After the vast country came under the power of Asoka, during the third century B.C., it was forced to adopt the Buddhist religion in which social service was a cardinal principle. Hospitals for the poor and the sick were built in every town and there young men and maidens were taught how to care for the needy and urged to devote their lives to medical charity. Asoka published an edict which may be read today on a rock at Gujerat commanding the establishment of hospitals throughout his vast kingdom, some of which still in use were seen by travellers a thousand years later, and the foundations of a few of those in Ceylon are still easily traced. At Anaradhapura, for instance, is the substructure of a hospital similar in design to the temples of Esculapius, at Epidaurus in the Peloponnesus, and at Hadrian's Villa, at Tivoli. It is probable that even the great Alexander, while introducing Greek plastic art into India, borrowed from the Buddhists in return some of their ideas as to the art of medicine, since we know that both he and his mother were interested in medical work.

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[1] Burdett, H. C. Hospitals and Asylums of the World. 1893.

[2] Neuburger, M. History of Medicine. 1910, 1: 47.

[3] Sarton, G. Introduction to the History of Science, vol. 1, p. 76, quotes from the ancient Vedas that Susruta and Atreya were among the most ancient professors at Benares, in the heart of India, in the sixth century B.C. Buddhist tradition tells us that Susruta was a surgeon and that he wrote a textbook on operations and instruments as well as remedies for disease. This was perhaps two hundred years before Greek medicine became established.

China. Further east we find that the Chinese and Siamese very early learned what they knew of medicine from the Brahmins. They employed women doctors in their courts to attend hospital patients free of charge, and such women were regarded as highly as any men of the kingdom. Burdett and others tell us that by 1000 B.C. the Chinese were more advanced in civilization than any other nation of the known world. Their women were not only midwives and gatherers of herbs but surgeons and students of medical lore. Like the men doctors they were dependent upon tradition for their methods of treatment, although they were skilled in making anatomical dissections of the human body, not merely of the pig. Later, however, the Chinese, like the modern Hindus, Arabs, and Turks, lazily discarded all their old science as the years went on, and allowed their doctors to take up any corrupt practice they chose as well as to mix their ideas of devils and exorcism with noise, and needles or acupuncture, forgetting their old beliefs in vaccination, clean surgery and helpful herbs. Until the coming of the Christian missionaries in the nineteenth century women in China were considered as household fixtures not only hampered with deformed feet, but incapable of using their brains or their hands in any public intellectual work. There is a long and dreary time between our day and the great days of Confucius and Lao Tzu in the fifth and sixth centuries B.C., when the theories of the sacredness of the souls of Chinese ancestors and the mysticism and fatalism of the Taoists almost indefinitely postponed the revival of learning. Buddha, 560–477 B.C., with his doctrines of love and reincarnation modified Chinese thought somewhat further, whereas very little attention was paid to the book on anatomy and physiology written by the Yellow Emperor, Huang Ti (Sarton, p. 122). The Chinese mind was set on philosophy and its women fell behind the men in medical study, and even in obstetrics they bungled fearfully.

Siam and Japan. The conditions here were no better than in China until the nineteenth century, but in those countries modern methods of education were somewhat more quickly adopted than in other parts of the Far East, although in remote parts of either many old customs still prevail today such as a belief in drinking blood to cure leprosy and eating blood-bread to cure consumption. In villages where malaria has always been a curse, prayers and prickings never proved to be as beneficial as mosquito extermination and the large doses of quinine brought by the western doctors.

Persians. Among the Persians of the centuries before Christ were herb doctors, knife doctors, and word doctors, a convenient classification even today. Among their learned people about 800 B.C. there was a famous queen Semiramis. She is claimed also by the Assyrians, for she ruled wisely and well, "a dove in the closet, an eagle in the field." Her subjects, women as well as men, were urged to study whatever was taught at coeducational schools, and some of them went to Egypt to study medicine at Sais or Heliopolis. They worshipped fire and earth, the sun and water. They built their temples near clear streams or pools or springs, and of their thirteen divinities five were women. Ormzud was the god of medicine, and he taught his disciples everything worth while for mortals to know. Herodotus and Hippocrates tell us that the Persians were great gymnasts, loved perfumes and hot baths, and were temperate in their diet. Their chief goddess was Immortality, and, like Ormzud, she also taught medicine to her pupils. She had five methods of treatment, by words (law), surgery, plants, texts, and righteousness. Like other divinities she lived in trees, charms, water, fire, stones, the moon and stars. Adisina, a wind goddess, could blow away sickness, and Agastya could heal many diseases with medicines.[1] One goddess of the water was able to purify the procreative organs and bring easy delivery to the mother and provide milk for the baby. Another was the giver of earthly sanctity and numerous offspring. Evidently these goddesses were originally human midwives, gynecologists, pediatrists, in fact, intelligent human women who had sympathy for suffering and skill in curing it, so that instead of being merely sainted they became even more spiritual beings.

Moreover among the Persians as among other Orientals, women were able to study and practice medicine, but whether or not they commanded the great fees such as were paid by Darius, the King, to the man who cured his dislocated ankle (a bowl of gold coins from every wife in the harem) we do not know, but probably the woman who lanced the abscessed breast of Queen Atossa was not less liberally rewarded. Nor can we believe that the women who attended the queen in her confinements or saved her from abortions due to the common ergot poisoning were forgotten in the distribution of gifts. It is said in the Zendavesta of the Parsees that in 400 B.C. there was a terrible epidemic of poisoning from the ergot of rye when every woman miscarried "from noxious gases that cause pregnant women to drop the fruit of their womb and die in child bed."

We shall find later how it was that through a Persian Queen of the fifth century A.D. Greek medicine was saved from oblivion at the university of Jundishapur, or Gondishapur, where the works of Galen and Hippocrates were copied by Arab students when there was no other medical school to which their men or women might go for medical books. Historians tell us that during hundreds of years before and after Christ there were good hospitals in Persia, as well as homes for the poor and asylums for lepers. Perhaps they were like the inns still seen in Jerusalem and Morocco where many a migrating Mary finds seclusion for her labor and a manger in which to place her newly born baby. There is an old Persian Romance, "Sydrac and Boctus," which deals with medical and other sciences, in the form of a dialogue between a certain king of the Bactrians named Boctus, who ruled over a large part of the country between Persia and India, and a philosopher and astrologer named Sydrac, a "descendant of Japhet, 842 years after Noah's flood."[1] Translated into French the story was called "Le liure de la fontaine de toutes sciences," and it consists of a series of questions and answers taken from Pythagoras and Aristotle but given to Sydrac "by divine wisdom." Eventually, as the book was often translated and retranslated through the centuries, the king was converted to Christianity, but what interests us is the description of the human uterus as it was taught six hundred years before Christ in the East. Sydrac tells Boctus (in the English translation of the late 15th century):

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[1] Baas, J. H. Grundriss der Geschichte der Medicin. 1876, p. 30.

> . . . the wombe
> If thatt thou understonde can
> Hath VII chambrez and no moo
> And eche is departyd other fro
> And eche may have in eche thoo
> A childe. And with the sevenn goo.

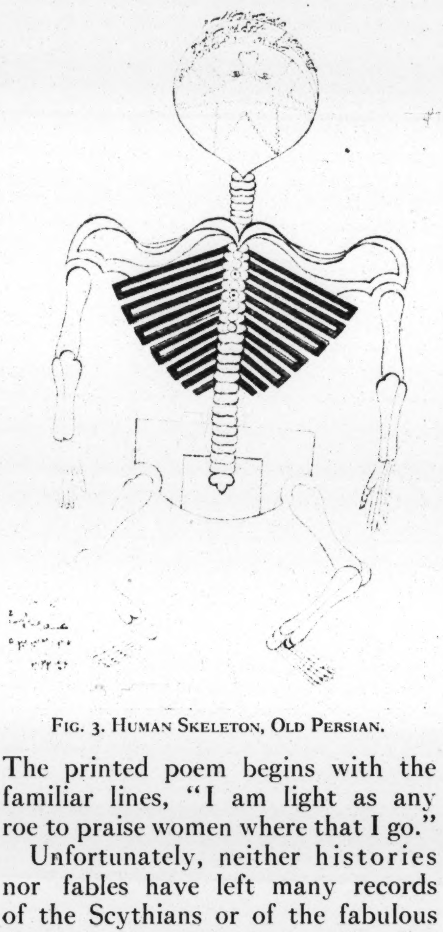

FIG. 3. HUMAN SKELETON, OLD PERSIAN.

The printed poem begins with the familiar lines, "I am light as any roe to praise women where that I go."

Unfortunately, neither histories nor fables have left many records of the Scythians or of the fabulous Amazon women, barbaric tribes living between Persia and Greece in the regions to the east and north of the Black Sea. We simply know that the state of their civilization was not unlike that of the Laplanders today, although they were by no means phlegmatic or stupid, for their women were the bravest of warriors, and, since men were merely tolerated once a year for the sake of perpetuating the race, all medical and civic duties fell to women. The queens of the Amazons are known traditionally as Penthesileia and Antiope and Hippolyte. They were said to have fought with, or against, Theseus and Achilles. Whatever may be the truth about these magnificent women we are glad that the sculptors of Greece have given us their ideas of such superb female figures as are seen on the frieze of the temple at Bassae, in the Peloponnesus, and on the tomb of Mausolus of Caria placed there by command of Artemisia, his wife, who was one of the most learned of Greeks—a woman who knew all the medicinal herbs of her country and named some of the best. Evidently to the rulers in Asia Minor there was no question of inferiority in these heroic women who verily must have lived in the flesh as well as in the artist's imagination.

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[1] Ward, H. L. D. Catalogue of Romances in the Dept. of MSS, British Museum, 1: 903–920; Eleven MSS of Sydrac and Boctus, 1883.

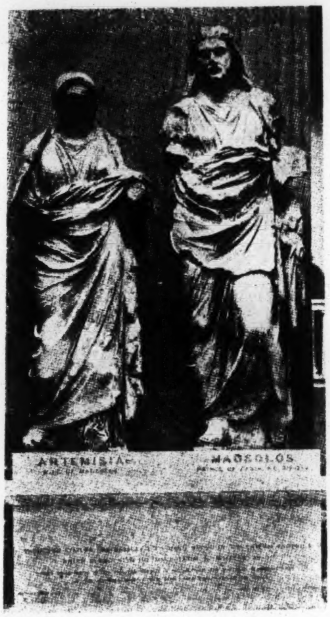

Fig. 4. Artemisia and Mausolus. (From the Tomb of Mausolus Now in the British Museum.)

It is possible that they may have represented to the story-tellers of long ago not only warriors but medicine women since their effigies are so often found beside that of the medical god, Apollo, and of Athena Parthenos on the Acropolis at Athens, and even on the shield of Minerva Medica. That their religion was one of labor rather than of imagination may be inferred from their simple costumes, short, close-fitting trousers, a loose blouse with ample sleeves, and seldom with any head-dress other than their beautiful hair.

However intelligent the people of the East may have been before the Christian era, they became degenerate as time went on, either from wars and pestilences or from the aridity of their lands due to the cutting down of the forests and the silting of the rivers. Their educational institutions were closed from lack of pupils or of teachers and their habits became slovenly until only the merest traditions of culture were left. Eventually, under Mohammedans or Christians, they began life anew, as we shall find in other chapters, but where a religion of fatalism like that of the Moslems rules the life of a nation the people sink into lethargy and are satisfied with a mere trace of what we call comforts.

The Sumerian Medical Goddesses

From the second to the fourth millennium before Christ medical knowledge among the people of Mesopotamia, Egypt, and Greece was substantially alike. Which was the first to develop new ideas it is difficult to say, but in general scholars now believe that the Sumerians, on the banks of the Tigris and Euphrates, were the first to evolve a theory of the personification of demons of disease, while the physician was a seer, astrologer, interpreter of dreams, and general ambassador of the gods.

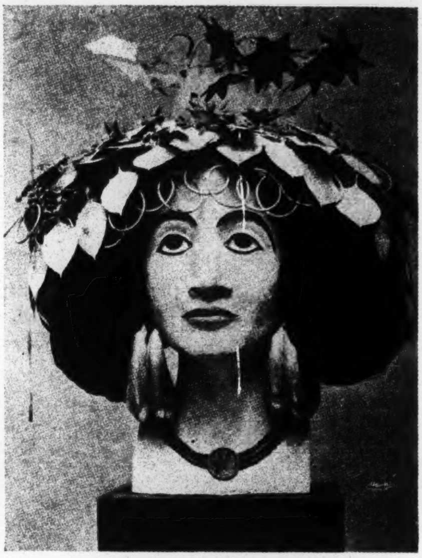

FIG. 5. THE SUMERIAN QUEEN SHUBOD OF UR. (FROM WOOLLEY, THE SUMERIANS.)

In recent years excavations in the valleys of these rivers have brought to light evidences of an extraordinarily high civilization there six thousand years ago. The jewelry, gold ornaments, pottery, and ivory carvings, as well as elaborate household furniture show that there was a considerable commerce with the nations to the east rather than to the west. From the carvings on harps and sleds and toilet articles the archeologists have evolved theories of the religion of the people of Ur of the Chaldees and of their medicine gods, many of whom were women. It has been suggested that the famous queen Semiramis or Sammuramat was queen-regent of Assyria rather than of Persia, and that women might have held positions as provincial governors during the heydays of Abraham's time. Even two thousand years before his day, however, the Assyrians, Sumerians and Babylonians built great towers and temples of brick and seem to have understood sanitation, the value of baths and of sunlight. In the grave of Queen Shubad, 3500 B.C., there were buried not only food for her journey but her choicest household effects, servants, friends, soldiers, and ox carts. Placed close to her hands were such special treasures as prescriptions for pain, written on little bricks, and surgical instruments of flint and bronze, and charms and amulets against the demons of disease. Evidently this queen, besides her love of furbelows, took a great interest in the health of her subjects, like several Egyptian queens of a later day.

FIG. 6. SUMERIANS FROM THE VALLEY OF THE EUPHRATES, 3500 B.C. (LOUVRE.)

The great Assyrian goddess of medicine, four thousand years before Christ, was Ishtar, or Mummu, the mother god, while Gula, the goddess of death and resurrection was frequently called the "chief physician."[1]

The Assyrians had thousands of gods; scholars have found about four thousand in Ur, Nineveh, and Babylon. They also worshipped the sun, moon, and stars, and trees, and pillars. They were awed by all supernatural phenomena, but their priests could appease individual gods provided their antagonists were not too obstinate. Their philosophy, however, was fatalistic and comforting. Ea, the fish god, was a powerful medical god who dwelt near the sea coast. He carried a little bag of rancid butter for salve, and a pine cone for medicine. He had flint and bronze knives, razors, pincers, probes and needles of bone and ivory, and cautery stones for stopping bleeding. Neither Baal nor Nebo was of so much help in sickness as Ea and his female colleagues, Gula and Ishtar, the latter often called the weeping goddess, such was her sympathy for suffering. She was the goddess of love, childbirth, general healing, and especially of woman's diseases, as well as of war, thus being as important in Assyria as Minerva Medica in Greece. Unfortunately, at a later time wild and immoral orgies were associated with her worship, but this is not uncommon when nations become degenerate.[1]

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[1] Enc. Brit. ed. 14 2: 858.

To Gula, on the other hand, there was imputed nothing lewd. "The great physician" is seen seated on a gold throne, wearing a long skirted dress trimmed with fringe. She sometimes has a crown, sometimes merely a wreath of plaited hair above her brows, but in her hand she always has a wand. In bas-reliefs we see processions of priests and priestesses coming to her with petitions from their patients, and sometimes the suppliants wear the masks of fierce beasts to denote the demon of disease. Gula became associated with Tammuz, the god of death and resurrection, and when the great king Assurbanipal was reigning, in the seventh century before Christ, he sent to Gula to implore her to cure his little son "from some insect-borne disease." Litanies were sung in her temples to celebrate her cures, for even in Babylonia advertising in certain ways was worth while, but if she failed to cure her patients it required the intercession of a thousand lesser gods to protect the sufferer from the seven devils, half man and half animal, with the heads of lions, rams, birds or serpents which brought diseases.

Laymen and women, singers, magicians, diviners, and psalmists sometimes got the ear of Gula against the female demon Lamashtu who plagued women in childbirth. Sometimes Gula told the attendants to rub the patient with salt, dough, water, or herbs, to serve as an atonement in absorbing the disease. Sometimes she ordered vegetable remedies or certain incantations, and sometimes the antidotes for poisons, of which she knew a long list. She understood the symptoms of all disease caused by "the worm" and taught them to her devotees along with lessons in divination by the liver of sheep, and the laws for the interpretation of dreams. Evidently diagnosis as well as cure was a specialty of this wise goddess physician.

From the great library of Assurbanipal, dating from more than 600 years B.C., have come some 800 prescriptions on clay biscuit-shaped pads. They give the treatment for sore eyes, sleeplessness, skin diseases, and many other maladies. Amulets have been found shaped like a barrel or cylinder or the head of a ram, such as were worn centuries earlier by Queen Shubad, and on these amulets, inscribed in almost microscopic letters, are prayers for safo confinement and easy delivery. Several abdominal bands such as were worn by pregnant women have also come to light telling the name of the owner such as this: "My name is Adad, the favorite of Bel," and praying for pity because of her unblemished life. Near the foundations of the temples to Ishtar have been recovered many finger rings, beads, charms, children's amulets, and ornaments once worn as prophylactics against sickness, and these contain the name of the special god who best understood the trouble, and a prescription for its cure. Sometimes the prescription is for medicine but frequently it contains the picture of the special demon involved in the disease as the monster is being ferried across the sea carrying the disease away as baggage.

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[1] Langdon, S., Oxford Prof. of Assyriology, Enc. Brit., Vol. 2.

A specimen of these prescriptions, probably dating as early as Abraham or earlier, may be of interest as showing the fashion in ancient remedies. "If a man's eyes are affected with dryness, he shall rub an onion, drink it in beer, and apply oil to his eyes." Or, castor oil cooked in beer is to be poured into the eye, or a hot antimony needle is inserted into the cornea to cure an inflammation. Pine cone gum was used as a lotion, and orpiment, made of gold and the yellow sulphide of arsenic, was common, and sometimes the arsenic was cooked in a curd made of harlot's milk mixed with lizard's dung. For diseases of the head the Sumerians used various ointments and lotions, and for headache there were prescriptions for cold lotions containing balsams and hyoscyamus. For the nose there was cedar oil and myrrh; for lice and itch, sulphur and cedar oil; for scabies, millet seeds in dry dove's dung; for dyeing the hair black there was a preparation of galls mixed with certain parts of the body of a snake and a few insects dissolved in oil of cypress. These may be taken as samples of the remedies of a good Sumerian or Babylonian woman doctor three thousand years ago, not forgetting that to these must be added the proper legend praying for the favor of the particular god or goddess,[1] such as this: "O clear eye, O doubly clear eye, O eye of clear sight! O darkened eye, O doubly darkened eye, O eye of darkened sight! like a cup of sour wine thrown away Gula quicken the recovery, thy gift."

Many bricks having such prescriptions may be seen in the British and other archeological museums, and on some of them we may still read the laws governing the fees of the physicians.[2] The Code of Hammurabi, written about 2250 B.C., on a pillar, tells us not only that a physician was well paid for curing a patient but in case of failure or clumsiness he must suffer certain penalties, even death, or lose one or both his hands, or pay a large sum of money to the family in case the patient was a servant and the doctor had not treated him according to rule. Even the wife and children of a surgeon might have to die for his lack of success in the treatment of a patient.

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[1] Thompson, R. C. Assyrian Medical Texts. 1924.

[2] Sumerian Tablets and Legends, from the Catalogue of the Assyrian Collection in the British Museum, 1924.

As for the actual practice of medicine by women we find that one who chose not to marry might devote herself to Ea or to Gula, learn to interpret oracles, recite the proper prayers at the proper time, and thus vie with Ishtar or Gula in healing the diseases of mortals by remedies as well as by charms and incantations. She must know the names and attributes of the healing gods and of the demons, what effigies to bury under the floor of the patient's house, what inscriptions to write on the bricks in order to win the favor of Gula and what against Lamashtu, must understand the causes of sterility, and how to alleviate the pains of labor. Pomegranates and models of eyes were generally buried beneath the floor along with images of the gods to ward off evil and insure strength and fertility. Prayers, when not immediately answered, were to be repeated louder and louder lest the god had gone away and could not hear.

The following is an example of such a petition: "All the evil that is in my body, may it be carried off with the water of thy body, the washings of thy hands, and may the river carry it down stream." And another comes from the library of Ashurnasipal, 883 B.C., copied evidently from a much older brick; it is a prayer for relief of toothache caused by a "worm":

The marshes created the worm.
Came the worm (and) wept before Shamash the sun god,
Before Ea (the water god) came her tears.
What wilt thou give me for food,
What wilt thou give me to eat?

. . . . .

I will give thee dried bones,
And scented wood.

. . . . .

What are dried bones to me
And scented wood
Let me drink among the teeth,
And set me on the gums;
That I may devour the blood of the teeth
And of the gums destroy the strength,
Then shall I hold the bolt of the door.
So must thou say this, "O worm!
May Ea smite thee with the might of his fist."

Then the healer should lay onto the tooth certain herbs mixed with oil, while repeating this incantation thrice.[1]

Among these ancient Babylonian bricks and tablets and pillars is found the oldest story of the creation of the world and of the deluge. In the latter tale a mortal named Gilgamesh seeks to avoid death, for "so long as houses are built, so long as water runs to the sea, so long will death come to man." Gilgamesh is told by "the ancestor" to build an ark because a universal deluge is about to appear. He became so seasick in the ark that he prayed to the "wife of the ancestor" to heal him. She repeated magic words and gave him water and a plant of immortality, but a serpent appeared and carried off the plant, so "Gilgamesh went to the place where the worm devours all, and was clothed with dust."

Evidently worms (germs) and insects were then thought to be the cause of all the pains of fever and abscesses, and only by the lawful combination of religion and medicine could they be cured by men or women.

Thus we find that among the earliest people of the East each nation held a belief in almost innumerable gods and demons, in the efficacy of prayer, and the punishment of sinful mortals by pain and death. Moreover, it is also evident that both men and women were the accepted intermediaries of the gods to heal pain and to ward off death. Even today the belief in charms and in the significance of dreams and their interpretation is common in many parts of the world. During the stone and bronze ages temple sleep and dreams in caves were a part of the prescriptions given to patients, but without faith in the doctor, or god, or goddess, and some tangible medicine, the bitterer the better, there was no hope of a cure. In Malta are found the earliest of these Stone Age underground incubation temples, most cleverly hewn out of the rock with flint implements, and among the thank-offerings of patients are images of the goddess of healing, little super-fat creatures with enormous breasts and hips, dating back perhaps twenty-five thousand years, testifying to the skill of the woman doctor or priestess who interpreted the dream for the believing sufferer.

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[1] Thompson, R. C. Assyrian Medical Texts. 1924. Also Boulton, W. H. Babylon, Assyria and Israel. 1925.

MEDICAL WOMEN AMONG THE EGYPTIANS

Having seen what appear to have been very early women doctors among the Assyrians, Babylonians and Hindus who lived in the valleys of the Tigris, Euphrates and Indus, in the centuries before the birth of Christ, we may find it interesting to turn to Egypt and the valley of the Nile for a comparison of religions and medicine farther west than the countries of the Indian Ocean.

Egypt in those days was not so isolated from Greece as from Persia and Mesopotamia, since there was no Suez canal, and journeys overland across the great deserts were more to be feared than journeys by water. Any traveling in the early centuries of civilization was done at the point of the sword, but as fighting and commerce have always led to an intermixture of races so each race added its quota of new ideas to the old educational structure of the other. Waves of progress and of culture tell their tales in centuries of war and plunder, and hence it is difficult to decide in every case which country was the first to adopt

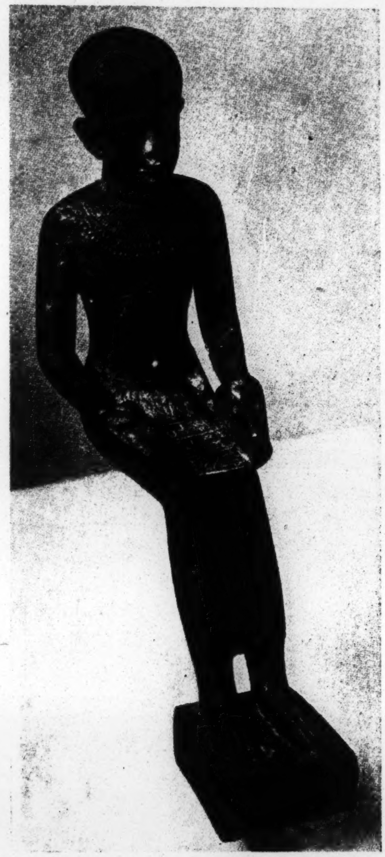
FIG. 7. IMHOTEP, 3000 B.C. PROBABLY A HUMAN WISE MAN WHO LATER WAS RAISED TO THE STATUS OF A GOD. (BOSTON MUSEUM OF FINE ARTS.)

or originate advanced methods in art, science and medicine, but, nevertheless, in Egypt as in Babylonia we again find women well to the fore in caring for the sick five thousand years ago.[1]

Diodorus Siculus, a historian of the time of Julius Caesar, studied the customs and traditions related by Herodotus and other earlier writers, and he tells us that there were several distinct waves of progress in Egypt during which women dominated men in almost every respect. At times women did the outside labor and held public offices, were government officials and physicians as in Sparta, while the men did the cooking and weaving or went off to hunt or to fight. In 4000 B.C. the succession of females to the throne was made valid, and it seems to have been a queen named Nitocris who appointed the wise Imhotep, in 3133 B.C., an alleged descendant of the god Ptah,[2] as court physician. This was perhaps an innovation and a reward to Imhotep and Ptah for writing medical books with instructions for improving the health of the people. This book of instructions is one of the oldest books in the world, written fifteen hundred years before the Code of Hammurabi. But even earlier than this tradition tells us that there was a great king in Memphis, on the Nile, named Teti, 4366 B.C., who was a skillful anatomist.[1] According to the authority of Budge, the Egyptologist, Teti or Teta lived at the time of Cheops, the builder of the Great Pyramid, 3733 B.C., but a thousand years more or less makes little difference to us now. At any rate, archeologists agree that Teti dissected human as well as animal bodies before he wrote his book on anatomy which was used in all the medical schools for a thousand years.

If it is difficult for us to understand how mere pigmy man could have built the pyramids, raised the great stone blocks into position, and chiselled long legends on the walls of the temples and obelisks, it is as difficult to see how ignorant slaves could have written the almost microscopic words of medical prescriptions on clay bricks or papyrus, still clearly legible today, and fashioned the beautiful images and amulets found in the ancient Egyptian graves.[2] Evidently the dawn of history was long before their time.

It is, however, evident that in a country where the reigning Pharaoh was of either sex and in either case a god in a Pantheon of more than two thousand gods and goddesses, and where all life in this world was but a preparation for the more blissful state after death, the working classes could have reason to sing at their hard labor and not to organize strikes. Education was not for the masses but for the aristocracy, and where a queen might rule and any woman leave her property as she pleased, girls were considered as scarcely inferior to boys though taught very little from books. Boys were given lessons in reading, writing, and arithmetic, in order to be able to manage their own business or become scribes for the rich. They were obliged to study certain languages, Hittite, Babylonian, and some Greek, and to write both the cuneiform and hieratic scripts. Men as well as women were vain, wore elaborate clothes, and wigs anointed with perfumed oil, and adorned themselves with jewelry. Women wore a cone of scented fat upon their heads so that it might melt slowly and run down their faces. They put henna on their finger nails, kohled their eyes, and rouged or greened their cheeks.

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[1] Breasted says that Imhotep, the Egyptian Aesculapius, flourished in the 30th century, and that the earliest reference to medical literature comes from the time of Neferrkere, 2800 B.C., the Kahun papyrus, 154 lines, 2000 B.C., the Smith papyrus, 469 lines, 1700 B.C., and the Ebers papyrus, 2289 lines, 1600 B.C. It has been said that Imhotep's mother was a princess, Kheredun-ankh; Sarton has found a seated statue of Imhotep, bronze, in the Boston Museum, from Giza; it is 117 mm. high (see Fig. 7), and is only one of many.

[2] The Instruction of Ptah-Hotep, translated by B. G. Gunn. 1909.

[1] Budge, E. A. W. The Nile. 1912, p. 29.

[2] The umbilical cord of a child was supposed to contain its soul, hence it was mummified to be worn as an amulet, or preserved until the death of the individual and placed in his tomb.

Many of the statues of the Egyptians of the early dynasties show a high mastery of art, and the faces of certain scribes and their wives whether of wood or of marble or alabaster, and painted or not, according to fancy, are really as beautiful as if made by artists of our own time.

As for the images of the gods, we can hardly call them beautiful with their animal faces and stiff pose. Among them were cats and dogs, birds and beetles, and the wild animals of mountains and desert. Above all these was the trinity of the sun, Osiris, his wife Isis, and their son Horus, who after being restored to health by Isis, took the form of a hawk. Isis was the great goddess of medicine. It was she who gathered up the slain body of Osiris and mummified it to save the pieces intact. Her sisters Nephthys and Neith were queens of the night and protectors of mortals from the pains that trouble them after dark. Sekhet, the wife of the medical god Ptah, had the head of a lioness. She was the famous bonesetter and therapeutist, and she saved from fire as well as from sickness. Bes, the smiling little dwarflike god, presided over the birth house at the temples where the women were confined, and Hathor, the cow goddess, fed the infant and cured sterile mothers. Ubastet, Sekhmet's sister, was an obstetric goddess and Meskhenet, of "the bi-cornate uterus" (Galen believed that the human uterus was bicornate) had charge of the hot stones

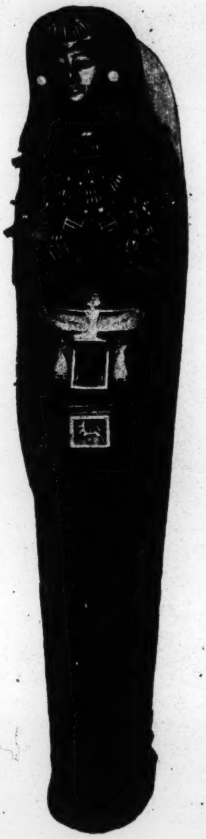

FIG. 8. MUMMY CASE OF AN EGYPTIAN PRIESTESS. (BRITISH MUSEUM.)

over which women crouched in labor.[1]

All these gods could harm as well as heal mortals,[2] hence the need of priestesses or wise women to procure their good will. Some of these priestesses had picture books with which to work, others received special oracles from their spiritual mistresses and learned how to address the gods properly.[3] The appeal to Isis was not unlike the appeal to the Virgin today: "Hail Isis, deliver me from pain, from death . . . as thou didst deliver Horus, thy son." This was repeated hundreds of times followed by "Come remedies, expel my evil." To Sekhmet or Sekhet the priestesses appealed in the same way for a purgative or for the removal of a tapeworm.

It is therefore evident that in this great and intelligent but polytheistic nation women as doctors, gods or priests were looked up to as the natural as well as trained healers of disease. Women had always been admitted to the royal medical schools of Egypt, no matter what their preliminary education had been. Each became a specialist in certain diseases as well as in obstetrics. Pliny and many other writers tell us about the old school at Heliopolis, or On, not far from Cairo, which was already a very ancient foundation when Moses and his wife studied there. Its graduates were given public offices with good salaries, and they treated the poor in what we might call free dispensaries. Euripides and Herodotus wrote eulogies on the intelligence of the Egyptian women and their skill in industry, commerce, medicine and law. The first woman doctor of "the old kingdom" in the fifth dynasty, or about 2730 B.C., practiced during the reign of a queen Neferirika-ra. Her son was a high priest at whose tomb is a tablet describing his mother as the "Chief Physician."

There was also a medical school at Memphis, south of Cairo on the Nile, where Ptah and Iemhotep, or Imhtep, were the most important gods and teachers. There was also a large library for the students, since Memphis was the most famous city of Egypt in the early dynasties as it is now one of the richest in archeological treasures from the tomb of Ptah and many other high officials of the kingdom. Memphis is today a favorite resort of tourists, especially in the spring time when for miles the fields around about are gay with beautiful great poppies in mauve and pink and white, among which are almost buried the little mud huts of the fellahin and the droning water-wheels for irrigation. It would be an unresponsive invalid indeed who could not regain her health on the Nile when the poppies were in bloom.

North of Memphis, near the sea on the Rosetta mouth of the river was the woman's college where gynecology and obstetrics were specialties. This was the famous school at Sais of which much was written in those days. There is an inscription found at Sais which delights the heart of a modern woman doctor: "I have come from the school of medicine at Heliopolis, and have studied at the woman's school at Sais where the divine mothers have taught me how to cure diseases," showing quite plainly that medical women were professors at Sais and received pupils from all over the known world.[1]

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[1] Cumston, C. G. An Introduction to the History of Medicine. 1926.

[2] The great god, Amen-Ra, the sun god, was father of Osiris. Both were the symbols of resurrection and immortality. There was also a female monster or demon, named Amam or Ammit, the Devourer, or eater of the dead, a crocodile-headed, lion-bodied, hippopotamus.

[3] Guide to the Egyptian Galleries of the British Museum, 1930, p. 202.

There is now little to interest the tourist at Sais, unfortunately, but perhaps in time excavators will bring to light bricks or books to show the work of these "divine mothers" just as, quite unexpectedly, the Rosetta stone was discovered not far from Sais.

The tomb of Ptah at Sakkara (near Memphis) is one of the most elaborate and beautiful in Egypt, but it is especially interesting to physicians, for it shows plainly the varied life of a medical teacher as portrayed by most skilful artists five thousand years ago; and among the pictures we see the old doctor at his usual business in the Paradise of his dreams, fishing, delighting in gymnastics, raising fowl and snaring them, and receiving the records of his crops and herds from faithful stewards. In a tomb in the Valley of the Kings is the picture of a woman doctor named Merit Ptah, the mother of a high priest who was also called "the chief physician." Neither her costume nor her bearing indicates her profession or her importance, but we can not doubt that, like the wife of Moses, she had been educated for the priesthood as well as in medicine and magic.

As to the students' textbooks we have already seen that they had a work on anatomy which was as useful for the embalmers as for the surgeons.

According to Teti's lessons in anatomy we find that his idea of the functions of the organs and veins was as crude as a child's idea of a telephone. The students were taught that there were two blood vessels in the head, probably arteries, through which the head drew breath from the heart and carried it all over the body; there were also two blood vessels in each leg and arm, in the forehead, neck, eyelid, nostril, etc., and two in the left ear "through which the breath of death enters the body."

In a textbook on medicine we find that diseases of the abdomen were treated first, then those of the eyes and urine, then worm diseases, erysipelas, epilepsy, burns and dropsy. There was also in very early times a great encyclopedia of knowledge in forty-two books, including law and medicine and every other subject. It purported to have been written by the ibis-headed god Thoth who corresponded to Hermes of the Greeks, and among the volumes were four on medicine, including one on gynecology and one on eye diseases. Just when these books were compiled it is impossible to say, but they are a part of the material of the Ebers papyrus which goes back to traditional times, while under their later title of the Hermetic books of Hermes Trismegistus they may have been written in the third century A.D.[1] At any rate they have much more to do with magic, for which the Egyptians were famous, than with medicine.

Among the medical papyri found in Egypt that of George Ebers is perhaps the most important. It was in part supposed to have been written by Imhotep, in red and black hieroglyphics or picture letters which fill one hundred or more pages. It was found at Thebes across the Nile from Luxor by the Leipzig professor and archeologist, Ebers, in 1874, and it is now thought to date from the sixteenth century before Christ. Its subjects include medicine, surgery and anatomy, the body being divided into three times twelve parts, each under a sign of the zodiac. Its remedies for pain and sickness include substances from the animal, vegetable and mineral kingdoms, everything from ink to spinal fluid, but even so it may not be as old as the surgical papyrus found by Edwin Smith, or the Book of the Dead. However, its subjects range from the bite of a crocodile to procidentia uteri, and its animal remedies contain such substances as one-thirty-second part of the tail of a mouse, a beaten ostrich egg, and cream of bullock's hide. For dental surgeons there were rules for hooking out teeth, for filling cavities with gold, for making false teeth and bridging spaces. For throat specialists there were prescriptions for fumigations to cure "the ball over which the patient can not swallow." One of these prescriptions is somewhat like one written on a stone now in the Metropolitan Museum in New York, and it calls for lapis lazuli, green stones, and "ikybu," Ethiopian schist and wine, well mixed and ground to powder, then to be burnt and inhaled. This stone is 4 inches square and half an inch thick. It may have been written by a Thebes physician in his office more than three thousand years ago, and quite likely was used by priests and priestesses in the dispensaries.

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[1] Sarton says (*Isis*, 15: 357, 1931) that Darius (521–485 B.C.) ordered Uzahorresenet to reorganize the medical school at Sais and to provide it with all necessary books and equipment. Sais then remained the center of medical exchange between the Greeks and Egyptians and others until the founding of the school at Alexandria.

[1] For a discussion of this subject see Lynn Thorndike: History of Magic and Experimental Science, 1: 289, 1923.

The Edwin Smith papyrus, now in Chicago, is 184½ inches long and 13 inches wide, having five hundred lines dealing with surgical injuries of the upper part of the body and spine, and, as has been said, it may be even older than that of Ebers. Evidently the ancient Egyptians did not lack textbooks or teachers of medicine, for the people of each century used the materials of the preceding centuries.[1]

Therefore we can easily understand how it was that women and men studied medicine together and used the same remedies in the same way. In a mortuary chapel at Thebes is a picture of a slave girl of about 1420 B.C. skilfully operating on the foot of a woman patient while the men of the family look on in evident admiration and sympathy. Perhaps the slave girl was an apprentice to her mistress, but the picture shows what was probably one of the common customs in Egypt under the great Pharaohs at the time of Moses. Surgical pictures are not rare on the walls of the temples or tombs. At Kom Ombo, for example, south of Thebes on the Nile, is a temple on the walls of which we find portraits of Cleopatra, as the reigning Pharaoh, with Julius Caesar and their son, Caesarion. Ptolemy XIII stands near, apparently in the care of five physicians, all gods, of whom two are women, Isis and Sekhmet, along with Ptah and the ibis god and Horus of the hawk body and head. As Thoth, the ibis god, is generally the scribe of the gods and famous for his cures of stomachache, we may imagine what was Ptolemy's disease. Each of these gods hands the key of life to the sick man and Isis gives him a branch of her favorite vervain with its spike of blue flowers. The scene is laid in an operating room in which the long table is covered with surgical instruments, scalpels, bleeding-cups, forceps, cauteries, hooks, a trephine, sponges, needles, jars of ointment, splints, containers for the poppy juice and mandrake to ease pain, castor oil for lubrication, and materials for poultices such as burdock leaves, mullein plants and milk-weeds, which together with senna and tamarinds still grow within the temple precincts.

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[1] The Edwin Smith papyrus deals with injuries, and in their treatment magic has almost no part. Advice for not touching inoperable cases is clear. Some archeologists put its date at 3000 B.C., but as the original document is lost its date is uncertain. Among its treatments we find that the Egyptians had lint for absorbing blood, plugs or swabs of linen for packing the nose, bandages, adhesive strips, stitches of thread, cauteries, splints, etc. Glosses of later writers mention the significance of the pulse as indicating the action of the heart, also they speak of the throbbing vessels in the brain and its convolutions, its covering, its fluid, and paralysis that comes from injury to its substance.

We know the name of at least one surgeon, Hr'nkhm-Say, whose tomb is in the Memphis region. This surgeon lived about 4500 years ago, in the sixth dynasty, and in one of the wall pictures of the tomb we see him sitting in front of a patient whose arm he is about to cut with a square stone knife (Fig. 9). Other patients are waiting, one of whom is impatiently holding his aching arm and whimpering that he is in a hurry and that the king had sent him. There are pictures showing surgeons and nurses lancing boils, circumcising babies, operations on feet, and so on, but the illustrations of major operations have been destroyed. We are told, however, that women surgeons performed caesarian section, removed cancerous breasts, and, according to Herodotus who was in Egypt in the fifth century B.C., they were especially skilful with their stone knives and also in the use of splints for setting broken bones.

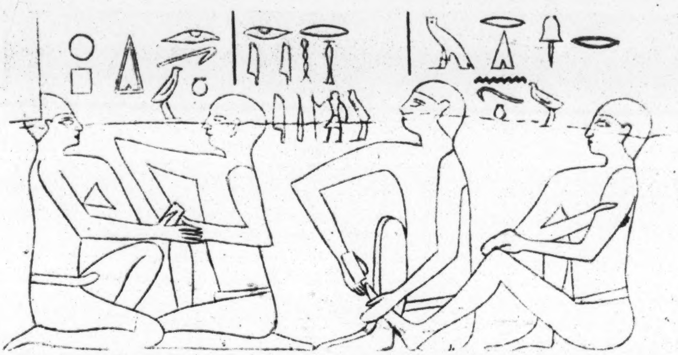

FIG. 9. A COUPLE OF SLAVE GIRLS, 1420 B.C., WITH SPLINTS FOR BROKEN BONES; OR SURGEONS ABOUT TO OPERATE WITH FLINT KNIVES.

As for gynecological writings there is a papyrus discovered by Sir Flinders Petrie, called the Kahun papyrus, dating from about 2500 B.C., which deals with this subject and with certain veterinary diseases. It contains no magic nor incantations, and we may suppose that it was written for the students at Sais. In it we find that the diagnosis of pregnancy was left to certain women specialists who gave a prognosis of the sex of an unborn child based on the color of the pregnant woman's face—if green the baby would be a boy—if a woman had spots before her eyes she would be sterile. A test for sterility was made by mixing watermelon with milk of the mother of a boy. This was given to an anxious patient to eat, after which if she vomited she would bear a child, if she had flatus she would be sterile. Sterility was treated with glands of animals accompanied by the performance of certain exercises, dysmenorrhea with hot drinks of herbs which these women specialists raised in their own gardens. They had studied female anatomy along with the art of mummifying bodies, and it was they who circumcised the boys and taught mothers how to wean their babies, sent pregnant women to the birth-houses at the temples at the proper time, and then, with the help of the gods Bes and Hathor and Isis, they guided the labor. Priests on the roof of the temple were meanwhile consulting the sun, moon, and stars for a horoscope for the infant. If the labor were difficult and unusually long, the crocodile god would have to be summoned, and as consultants the aid of all these gods might be loudly invoked. Their statues stood in shrines in the most remote and darkest part of the temple where only their voices uttered by priests on the roof could be distinguished by the priestesses who then would carry out the god's commands to "burn turpentine near the patient's abdomen," or to "rub the abdomen with a mixture of oil of saffron and beer," or to "mix marble dust and vinegar and place it on the abdomen" to ease the pains of labor.

During the hours of labor the patient crouched over sizzling hot stones or submitted to the pummelings of the nurses while sitting on the birth-stool, but her own sufferings mattered nothing if only her baby had a good horoscope. The Egyptians were experts in astrology and astronomy, which sciences they had taken and developed from the Babylonians.[1]

Children's diseases were treated according to certain specified rules by men or women as doctors or priests. Even the diet was prescribed by law and it contained a liberal allowance of fruit, fish and vegetables, and probably broad beans and lupins, which are still grown in Egypt as the staple of diet. The bodies of the little naked children were oiled with castor oil to prevent the poisoning from insects, but, as Sir William Willcocks has pointed out, it may be that mosquitoes do not poison human beings where beans grow in plenty. One curious custom among the Egyptians of long ago was to smear the heads of children with an ointment made from the pads of the feet of dogs, the hoofs of asses, and crushed dates, probably to cover up and kill the vermin. Worms were expelled by fern seeds and pumpkin seeds.[2]

There is an interesting and pathetic picture on the walls of the tomb of Rameses III in the barren Valley of the Kings, near Tutankhamen's tomb, which shows the father taking his little son to Isis to be healed; but Isis turns her head away and raises her left hand as a sign that the little fellow must die. In another picture Isis, in good humor, gives a new necklace to a little princess who is having a hard time with teething, and while she gives the present she also holds the child's chin and looks carefully into the sore mouth in a very sympathetic and human way. Another interesting picture of a child of 3500 years ago shows us a boy with a withered leg whom a priestess presents to Isis together with the appropriate offerings and prayers. Isis heals the boy and we see him again with both his legs straight and sound. Gifts to Isis were always white, flowers, or berries, or garments, and the rules for approach to her altar were quite definite. The priestess physician must stand before her altar or statue impersonating the patient and saying, "O Isis, thou great charmer, heal me. I am little and lamentable . . . deliver me from typhonic things and from deadly fevers of every sort, etc." Then Isis would perhaps answer, "Make a plaster of lettuce, one part; dates, one part; boil in oil and apply"—to the abdomen, for example, or if the patient had an abscess Isis might say, "Take crushed dates, beans, resin of acanthus, lint of linen, sweet myrrh, sweet beer, and apply as a plaster." For heart

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[1] Murray, M. A. The Bundle of Life. Ancient Egypt, part 3, 65–73, *Isis*, 16: p. 515. Review by Sarton.

[2] Wehrli, G. A. Das Wesen der Volksmedizin und notwendigkeit einer geschlichtlichen Betrachtungsweise derselben p. 369. From Essays on the History of Medicine, presented to Carl Sudhoff, on his seventieth birthday. 1924.

Jayne, W. A. The Healing Gods of Ancient Civilization. 1925.

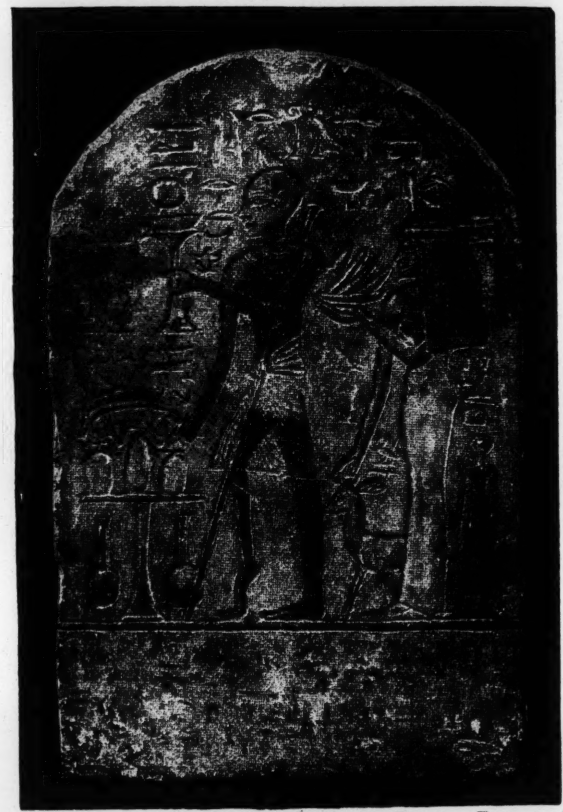

Fig. 10. Oldest Known Illustration of Infantile Paralysis. From an Egyptian Stele Now between 3000 and 4000 Years Old.

trouble or dropsy, the advice was, "If the blood has stopped and does not move, bring thou it in motion . . . and apply this most excellent plaster of ox tallow, crocus seeds, coriander, myrrh, and aager tree, pulverized." Or, as we have already seen, the priestess would begin with "Hail Isis, deliver my patient from pain and demons," etc.

Figs. 11–15. Medicine Chest of Queen Mentuhetep, 2300 B.C. (Berlin Museum.)

Many of these prescriptions on papyrus or bricks are now in the great museums of the world as well as in Cairo. They date from the time of Cheops to the time of the Ptolemies, and they contain not only the rules for making plasters but for infusions, and powders made from every known plant and every portion of the carcass of an animal and its excreta. Many prescriptions were long and intricate and made of dozens of ingredients, but far pleasanter than nauseating drugs were the charms and necklaces that could be worn to ward off the demons of disease. Historians tell us that if the doctors "gave up" a patient he was placed beside the road for consultation with the passers who might have seen some wonderful cures of such a case. The Egyptian pharmacopoeia was memorized by the learned people as well as by the doctors, and those who had gardens raised medicinal plants for the public as well as for themselves. There are still many of these old herbs growing in waste places in the Nile valley, although every inch of fertile land is supposed to be cultivated commercially.

Among the most learned Egyptians the queens easily led in all medical matters. From the days of Queen Mentuhetep (2300 B.C.) to Hatshepsut (1500 B.C.) almost one thousand years later, and then nearly fifteen hundred years to the bewitching Cleopatra of the first century before Christ, there were always women doctors, nurses, apprentices and slaves who understood the care of the sick and the preparation of medicines. There is in the Berlin museum the traveling medicine kit of Mentuhetep, a queen of the XI dynasty at Thebes, about 2200 or 2300 B.C., which has been called a toilet case by scornful critics, but as it contains a large cedar chest outside a bamboo case within which a covered wicker chest stands on a movable base, it is much too large for the latter purpose, especially if compared with the toilet articles of other queens. It holds five large alabaster jars for ointments, one of serpentine for tinctures, two measuring spoons, a mixing dish and several dried herbs, and was probably buried with the queen for the use of her large retinue in the next world. Her cosmetic box and her best wig were also placed near her mummy,

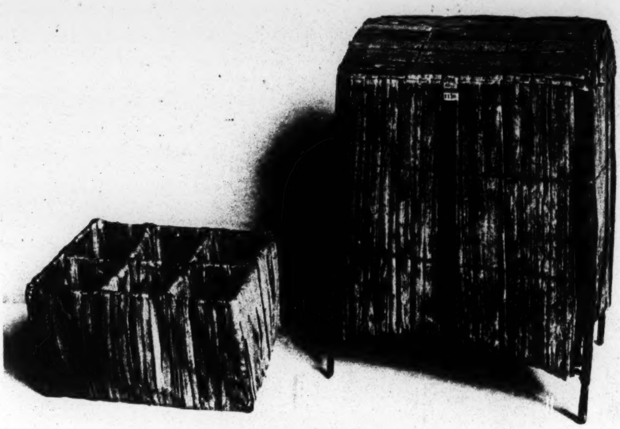

Fig. 12.

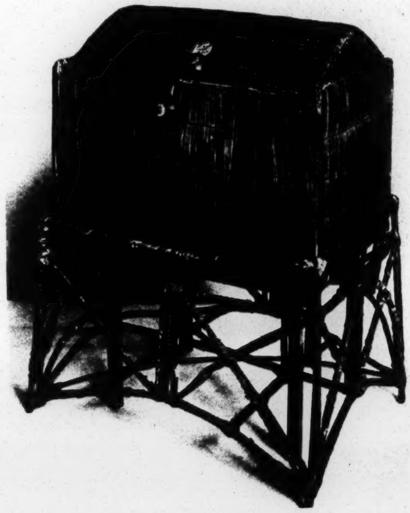

Fig. 13.

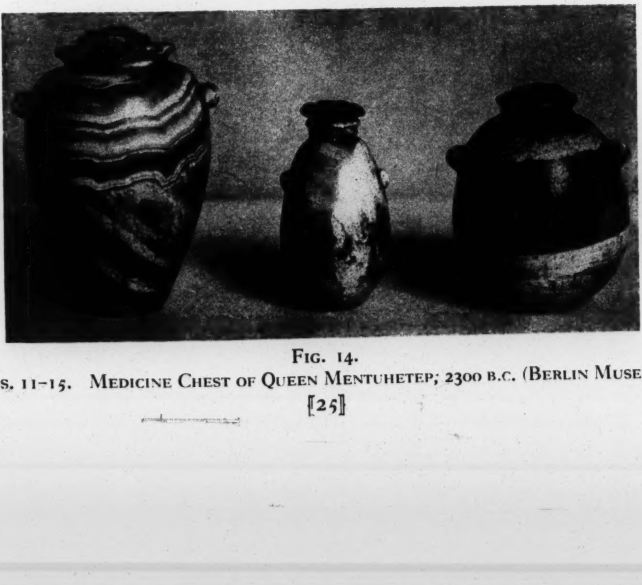

Fig. 14.

Figs. 11–15. Medicine Chest of Queen Mentuhetep; 2300 b.c. (Berlin Museum.)

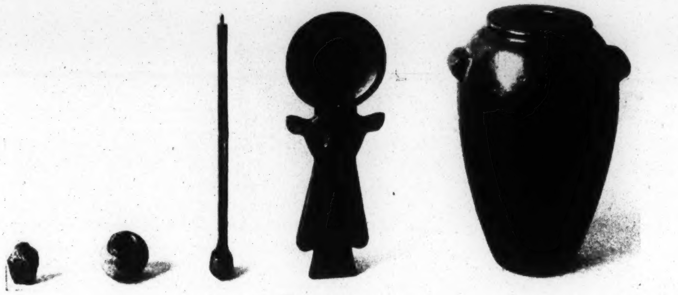

Fig. 15.

and though we have no portrait statue of this old queen we may picture her as delighting in her ability to be helpful to her subjects in time of suffering.

Unfortunately, the medicine case of Queen Hatshepsut has not been found. Her virtues and her great learning are blazoned on her obelisk in New York, in London, and also at Luxor in Egypt, and her beautiful and intelligent portrait may be seen in many museums (see Fig. 16) as well as at her temple of Deir-El-Bahari, on the Nile. Other likenesses and eulogies of Hatehspsut were erased by her brother and successors, and their own substituted in her place, so that for many centuries it was thought that her good deeds and peaceful reign were theirs. In recent years Hatshepsut has been credited with great buildings, obelisks, and temples as well as with keeping peace all over Egypt and the contiguous countries, and today it is thought that it was she who discovered the baby Moses in the bulrushes. Professor Garstang, the archeologist, has recently found in Jericho scarabs and signet rings indicating that the Exodus of the Israelites, as told in the Bible, occurred immediately after her reign, partly because of her brother's jealousy of Moses.

Hatshepsut was as great a queen as Elizabeth of England. She was a pacifist in days of war and plunder, a serious philosopher in times of superstition and magic. Her temple was dedicated to many gods but chiefly to Hathor, the cow-headed god of mothers and babies. On the walls of the temple birth-house we see the mother of Hatshepsut before the birth of her daughter, accompanied by the ram and frog gods, imploring aid from the ibis-god in her confinement, and then proceeding into the sanctum of Hathor where the baby was born. Later we see this baby taking milk from Hathor, under whose protection she was to rule as Pharaoh. The legends on the temple walls tell the story of Hatshepsut's peaceful conquests of the people of Punt, further south, the devotion of her various subjects, and their intelligence in agriculture and the arts. We may be sure that the three great medical schools flourished during her reign, for we know that she must have sent Moses to study at Heliopolis. Libraries and observatories also flourished, while sanitation and hygiene were not forgotten. She had enormous gardens of herbs, parks, and swimming pools for her people where they were encouraged to amuse themselves and to eat her fruits and imported luxuries.

We have seen what were the usual remedies used at the time of these queens, rather vile-tasting mixtures most of them must have been. Sir Frederick Treves has said that many people prefer strong medicines, the more pungent and disgusting the better and the more miraculous the cure. The Egyptians raised their own emetics, diuretics, cathartics, sedatives and vermifuges. They had squills and copper salts, and hemlock, groves of date palms and fig trees, acres of poppies, and many other remedies which we still use in the twentieth century.

Not much advance was made in medical ways and means after Hatshepsut's time. It was left for the scientists of the far West and North to clarify the pharmacopoeia, and to find the key to the hieroglyphics that tell us the story of the Egyptian queens and priestesses and medical women. In 1904 the first director of the American Mission Hospital at Tanta, between the Rosetta and the Damietta mouths of the Nile, installed a woman doctor named Lawrence at the hospital and from there she went all over the adjacent country healing the sick and teaching hygiene. This hospital was built with American money contributed by the women and children of the United States.[1] Budge says that hundreds of patients annually fill the beds and thousands are treated at the dispensary and in the daily clinics. The physicians are all women as well as the nurses, and we may feel that the work of the old Egyptian teachers is continuing after the lapse of many centuries. There was a time in the seventeenth and eighteenth centuries when Egyptian mummies were ground to powder for medicine and, as Sir Thomas Brown wrote, "What time hath spared, avarice now consumeth; Mizrain cures wounds and Pharaoh is sold for balsams."

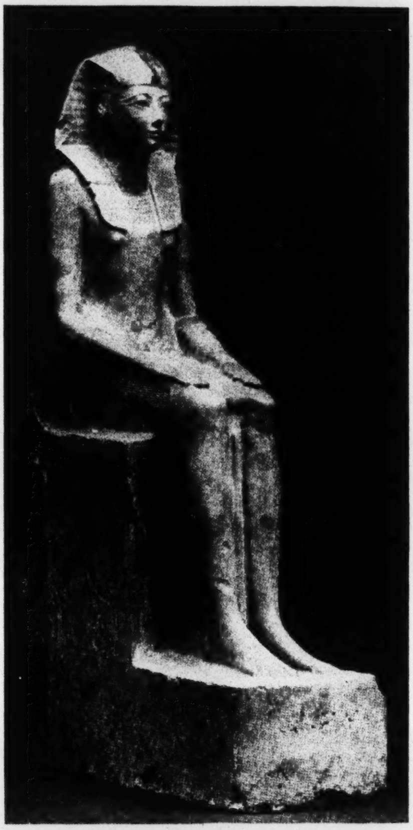

FIG. 16. QUEEN HATSHEPSUT. (METROPOLITAN MUSEUM, N. Y.)

A short reference chronology follows:

Teta, magician and anatomist, about 3733 B.C.
Teta, the king, at Sakkarah about 3266 B.C.
Ptah-he-tep, at Memphis about 3360 B.C.
Nitocris and Iemhetep about 2500 B.C.
That Iem hetep, a woman doctor about 700 B.C.
Menthu he tep, a woman doctor about 2500 B.C.
Hatshepsut, the queen about 1500 B.C.

(To Be Continued)

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[1] Budge, E. A. Wallis. The Nile. Ed. 12, 1912, p. 416.

WILLIAM BEAUMONT, M.D.*

[1785-1853]

By WILLIAM SNOW MILLER, M.D., SC.D.

MADISON, WIS.

WILLIAM BEAUMONT was of Huguenot descent. Following the revocation of the edict of Nantes the De Beaumont's, driven from France, found refuge in England. William was the fifth in descent from that William Beaumont who emigrated from England and eventually settled in Saybrook, Connecticut, about 1640.

Saybrook is of special interest to all Yale graduates for it was here, in November, 1701, that the "Collegiate School of Connecticut" was formally established, though the classes were taught, until 1707, in that part of Killingworth now called Clinton. Finally, after much opposition, the school was, in 1716, permanently located in New Haven, and the name Yale College adopted, in recognition of the gifts of Elihu Yale.

Indirectly the Beaumont family was brought into relationship with the founding of Yale, for Samuel, the son of William, married Hester Buckingham, the daughter of Rev. Thomas Buckingham, one of the founders of Yale College.

The great-grandson of William Beaumont, also named William, born in 1725, left Saybrook and settled in Lebanon, Connecticut. He died in 1812, and bequeathed all his "land lying in Lebanon Village" to his son Samuel, the father of the subject of this sketch, the fourth to bear the name, William.

William Beaumont was born at Lebanon, Connecticut, November 21, 1785. He was the third child, and the second son, of Samuel and Lucretia (Abel) Beaumont.

Of his childhood, youth, and education, we have no definite information. At this time he did not have the habit of keeping a diary. He must have attended the district school and acquired a good common school education for, as we shall see later, he became for a short time a school teacher. Possibly, as a child, he carried to school a piece of sulphur in his pocket which he occasionally took out and rubbed over his fingers and hands; a preventive of that common pest of school children at that time, the itch. I have heard my father, who attended a Massachusetts district school at a slightly later day, say that it was a common custom, and that it was this custom and the introduction of the sulphur match that practically eliminated the pest.

With his education finished and having reached his twenty-first year he left home in the winter of 1806–1807 with "a horse and cutter, a barrel of cider, and $100.00 of hard-earned money." Passing through the western part of Massachusetts and Vermont, he reached early in 1807 the village of Champlain, New York. One wonders how far he could have gone in these days, under the Volstead Act, with such an equipment.

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* Introductory Lecture given, under the Carmalt Foundation, before the Beaumont Club of the Yale Medical School, February 23, 1931.

In Champlain he not only taught school and tended store, but he also began the study of medicine, reading books borrowed from Dr. Pomeroy, a prominent physician in Burlington, Vermont.

James H. Lockwood, who in 1830 became Associate Judge of Crawford County, Wisconsin, and in 1836 a member of the Wisconsin Territorial Legislature, says in his "Early Times and Events in Wisconsin," that he was born in the town of Peru, Clinton county, New York, December 7, 1793, and in 1805 with his parents moved to Champlain. At first he attended school for two or three winters at the village of Chazy, some two and a half miles distant, where he learned "to read, write, and cypher as far as the Rule of Three. In the summer of 1808, I boarded at Champlain Village, and attended the school taught by the late Dr. William Beaumont, who was then a student of medicine. Under his tuition I greatly improved myself in grammar, geography, etc., but at that early day I never saw a school atlas."

In the fall of 1810, having saved sufficient money to carry him through the necessary two years of apprenticeship, and finding no physician in Champlain with whom he wished to study medicine, Beaumont crossed Lake Champlain to St. Albans, Vermont, and apprenticed himself to Dr. Benjamin Chandler who took him into his own home as a fellow pupil with his son, John, who had already begun reading medicine with his father.

Dr. Chandler seems to have been above the average physician, for it is said that he was "most skillful in his medical practice and notably in surgery." Although he contributed nothing to medical literature, he contributed much to scientific medicine, for he instilled into the mind of Beaumont the importance of cultivating careful observation and a retentive memory.

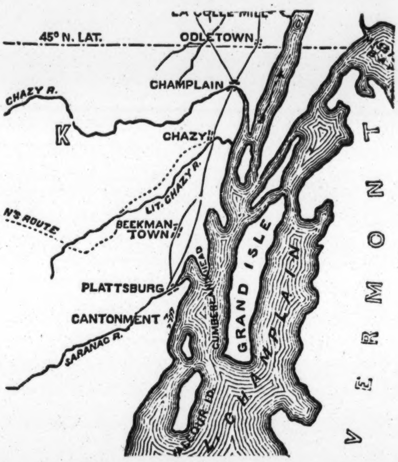


FIG. 1. MAP SHOWING THE LOCATION OF CHAMPLAIN, WHERE BEAUMONT FIRST LOCATED; PLATTSBURGH, WHERE HE TOOK PART IN THE BATTLE OF PLATTSBURGH, MARRIED HIS WIFE, AND PUBLISHED HIS "EXPERIMENTS."

Beaumont accompanied his preceptor on his rounds of visits and in this manner saw much of "clinical medicine." Each case was discussed, and his notebook shows that the symptoms and treatment were carefully considered. If the case came to autopsy he recorded all the findings. If an arm were amputated he made a careful dissection, and in this way acquired a knowledge of practical anatomy.

At the end of two years, having fulfilled the prescribed apprenticeship he was licensed "the 2nd Tuesday of June, A.D., 1812," to practice medicine by the "Third Medical Society of the State of Vermont, as by law established," and the license was signed by the President, Dr. Pomeroy of Burlington, from whom he had borrowed his first medical books. Dr. Beaumont remained with his preceptor until

September 8, 1812, and on his departure Dr. Chandler gave him a certificate attesting his good character and ability as a physician.

FIG. 2. GENERAL JOSEPH BLOOMFIELD, UNDER WHOM HE RECEIVED HIS COMMISSION AS SURGEON'S MATE.

War with England had been declared on June 18, 1812, and Beaumont saw an opportunity to display his patriotism and at the same time to gain a practical knowledge of medicine and surgery. Crossing Lake Champlain to Plattsburgh, New York, he presented his credentials to the proper authorities, and on September 13, 1812, was brevetted surgeon's mate in the Sixth Regiment Infantry by General Bloomfield. President Madison issued his commission on December 2, 1812, and on December 12, he was transferred to the Sixteenth Infantry. Just at this time his division was inactive; therefore, on January 1, 1813, he suspended duty for the time and began private practice in Plattsburgh, New York. During this time of inactivity Beaumont paid a visit to his old preceptor, Dr. Chandler, who tried in vain to dissuade him from reentering the army. Active operations having begun he returned to the army and was transferred on February 15, 1813, to his original assignment, the Sixth Regiment.

At this time Beaumont kept two diaries; in one he described his marches and engagements, while the other gave an account of the diseases of the army and the injuries received by the soldiers in the battle at Little York, and at Fort George.

On March 19, 1813, Beaumont left Camp Saranac, which was situated four miles from Plattsburg and, with the 1st Brigade, marched to Sackett's Harbor, situated on Black River Bay (an inlet of Lake Ontario), a distance of 180 miles, arriving on March 27. Here the Brigade encamped until April 22, when it embarked on the schooner Julia and sailed the following morning, April 23; but a storm coming on they returned to Sackett's Harbor. The next morning the weather was favorable and they set sail—destination unknown. Passing Kingston and Niagara they came to anchor some ten or twelve miles from the fort at Little York, the evening of April 26, and on the 27th entered the harbor, anchoring a short distance below the British garrison.

A landing was made with some difficulty; for the British troops made a strenuous effort to frustrate the landing. In the engagement which followed the British were driven back into the Fort which, on account of the combined attack of the troops and the fleet, they were eventually obliged to vacate. Beaumont says in his account of the battle: "Driven to this alternative, they devised the inhuman project of blowing up their magazine (containing 300 Bbls. powder), the explosion of which, shocking to mention, had almost totally destroyed our Army." The magazine was situated upon the edge of the water at the mouth of a ravine. Lossing says, "The magazine was about twenty feet square and contained five hundred barrels of gunpowder, and an immense quantity of shot and shells. It was built of heavy stone, close by the lake shore, with a heavy stone wall on its water front. Its roof was nearly level with the surface of the ground . . . it was so situated that the Americans did not suspect its existence." Beaumont says: "stones of all dimensions fell like a shower of hail. Our regiment suffered, more than any other, being the most advanced. About 60 were killed on the spot, 20 of ours, and 250 wounded, of which 109 belonged to our Regiment. The wounds were of the worst kind—compound fractures of legs, thighs, and arms, and fractures of skulls." All that night and the next day, April 28, he was busy doing all kinds of operations and dressing wounds.

On May 8, 1813, Beaumont left Little York for Niagara, and on May, 14, he was in camp near that place. May 22, general orders were received for an attack on Fort George. Col. Scott, "Old Fuss and Feathers," with 800 men for the advance guard, supported by the 1st Brigade, made the attack; Beaumont says, "with surprising success, not losing more than 30 men." The British lost 100 killed, 200 wounded, and 100 prisoners and were obliged to evacuate the town (Newark).

Beaumont apparently had charge of the General Hospital at Lewiston at this time for we find that on June 21, he moved the wounded from the Hospital at Newark to Lewiston on the American side of the river and on the 28th, "recommenced duty in General Hospital, Lewiston."

The lands in the vicinity of Niagara were wet and it was upon these grounds that the hospital was first established. The wounded from the battle at Little York were brought to this place, and many of them "died with typhous (typhoid?) fever, accompanied with diarrhoea." Mann says: "The disease began to subside about the fourteenth day and gradually disappeared during the third week."

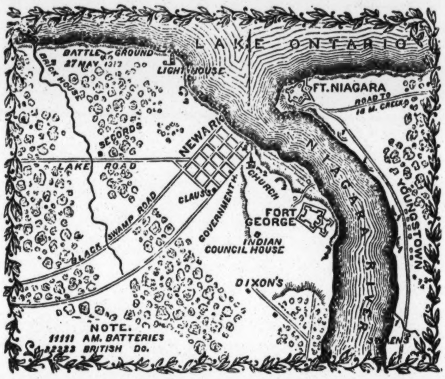


Fig. 3. Map Showing the Location of Forts Niagara and George, and the Battlefield. (Lossing.)

At the end of six weeks the sick and wounded soldiers were removed to Lewiston, eight miles up the river, where the ground was higher, gravelly and dry. "By the first of August there were between six and seven hundred patients in the two spacious barns, and hospital tents." Beaumont continued on duty at Lewiston until August 13, when on account of ill health he was ordered to Fort George, and suspended active duty. August 22, he makes the following laconic entry in his diary: "received orders to repair to Fort George immediately. Gone." How long Beaumont was ill and the nature of his illness we do not know, for the diary is silent on the question. This we do know from

Surgeon Mann's account, that during the month of August more than one-third of the soldiers were on the sick list and "of seven surgeon's mates, one died, three were on leave of absence by reason of indisposition, and the other three were for a short period sick."

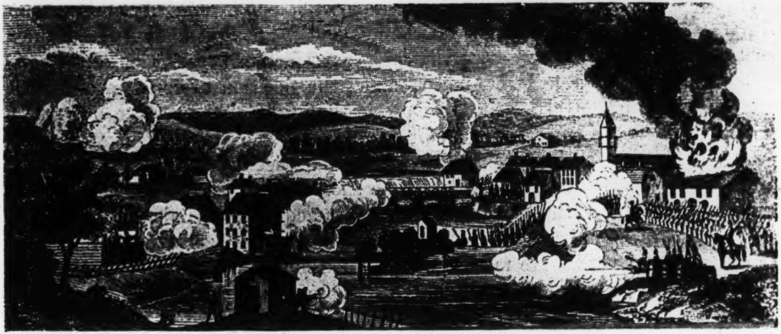


FIG. 4. BATTLE OF PLATTSBURGH. THE COURT HOUSE IS SHOWN IN FLAMES. THE CHURCH SURVIVED UNTIL SEPTEMBER 1867, WHEN IT WAS BURNED. (LOSSING).

Beaumont's second note-book gives the prevailing diseases in the army: "Intermittent, Typhus, Dysenteries, Rheumatism, Pleurisy, Peripneumony," and his methods of treatment, which seem to have been generally successful.

In September, 1814, he took part in the battle of Plattsburgh. This was a combined naval and land battle. The preliminary engagement took place September 6, 1814, the British commanded by Sir George Prevost driving the Americans under General Macomb to the right bank of the Saranac River. They crossed in time to destroy two of the bridges across the river. This checked the advance of the British; and although they attempted to force a passage of the river, they were repulsed by the guards at the bridge, and a small company of seventeen, all under age, which was stationed in a stone mill.

Between September 7th and 11th the British were making their plans and bringing up their reserves for the combined attack. This was opened by the fleet and, to make a long story short, its commander, Captain Downie was killed, and the fleet itself was practically annihilated by the American fleet under the command of Captain Macdonough. Seamen in those days were not different from the seamen of today. The sailors on the American flag-ship, *Saratoga*, had brought on board a gamecock which they had in some manner secured.

> A shot from the British Brig, *Linnet* demolished the coop in which he was confined. The released fowl, startled by the noise of the cannon, flew upon a gun-slide, and, clapping his wings, crowed lustily and defiantly. The seamen cheered, the incident appearing to them as ominous of victory for the Americans, strengthened the courage of all.

While these events were taking place in Plattsburgh Bay, the British moved in three columns to force the passage of the Saranac, but they were driven back and the tidings that the British fleet had surrendered led to prolonged cheers by the Americans which so disheartened the British that they withdrew from the attack and began their retreat into Canada, stopping for a day at Champlain, the place where Beaumont began his medical studies.

The part played by Beaumont and the other surgeons in this battle is well told by Hospital Surgeon Mann in his report to Surgeon James Tilton.

> During the investment of Plattsburg by the enemy the surgeons were constantly passing from fort to fort or to block-houses to dress the wounded, exposed to a cross fire of round and grape shot, while the greater part of the army was covered by fortifications . . . If any officer had hardships attached to his office, it was the surgeon, who executed his office with fidelity and assiduity . . . To discriminate would be an act of injustice. Doctors Lawson and Mason, surgeons of regiments, and Warmsley, Beaumont, and Hugo, surgeon's mates, have deserved well of their government.

A few days after the battle, the citizens of Plattsburgh gave a public dinner to Commodore Macdonough, the commander of the American fleet. This was given September 23rd, at Israel Green's Inn, later known as the "United States Hotel." One who was present said, "Much credit is due Mr. Green for the excellent dinner which he provided for the occasion, it being generally conceded to be the best ever given in Plattsburgh." It is possible that here we have the beginning of an interesting episode in Beaumont's career, and possibly the reason why, as will appear later, he decided to remain in Plattsburgh.

The treaty of Ghent was concluded in December, 1814, and ratified in February, 1815, bringing the war to a successful termination. Although he did not do so, there is evidence that Beaumont contemplated leaving the army at this time, for a number of certificates similar to those given him at the time he left St. Albans are among his papers. However, when President Madison, in March, 1815, reduced the army, and a proportionate number of officers was dismissed from service, Beaumont was one of the medical officers to be retained, while others "higher in rank and older in service were dropped," in accordance with the policy, "that those who have most merit should be retained." This was a high testimonial to the efficiency of his work in the army. Nevertheless, being dissatisfied with the conditions in the service, Beaumont resigned from the army late in 1815, and began private practice in Plattsburg, taking as a partner Dr. G. Senter, another army surgeon. They also opened a combined grocery and drug store. A few months later when Dr. Senter was obliged to go south the partnership was dissolved and a new partner by the name of Wheelock came into the firm.

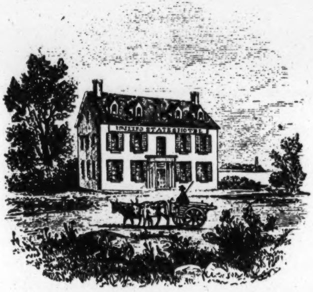


FIG. 5. ISRAEL GREEN'S INN, LATER KNOWN AS THE UNITED STATES HOTEL; BUT IT IS THE SAME BUILDING. FOR MORE THAN SEVENTY YEARS IT WITHSTOOD WAR, FIRE, AND FLOOD; IT WAS FINALLY DESTROYED BY FIRE IN 1868. (LOSSING.)

Among the papers left by Beaumont is a "Medical and Physical Journal," which was begun in November, 1818, and continued until he discontinued practice in Plattsburg the latter part of 1819. The case of Mrs. Wheeler, who, on August 8, 1819, was bitten by a cat which was supposed to be mad, is described in detail. Beaumont saw the patient within an hour and a half after she was bitten. He excised the wounded part, and gave a dose of 10 grains of calomel to be taken at night, followed by another with rhubarb in the morning, and at the same time dressed the wound with the leaves of Alyma plantago (water plantin). Eventually the wound cicatrized throughout the greater part of its extent, but on September 10, she had sharp pains in her foot, and "A sense of suffocation in her throat," for which she consulted Beaumont. The wound now had a dark, livid color, and she presented a highly nervous condition. Beaumont feared hydrophobia, and directed her to return home at once, apply a charcoal and carrot poultice, take a dose of calomel and keep the surface of the wound covered with calomel. In addition, he gave her some Scutillaria lateriflora (scull-cap) "with directions to make a strong decoction and drink a gill morning and evening."

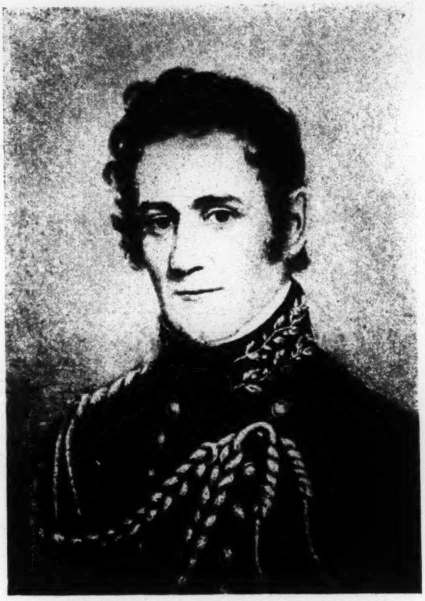


FIG. 6. SURGEON-GENERAL LOVELL.

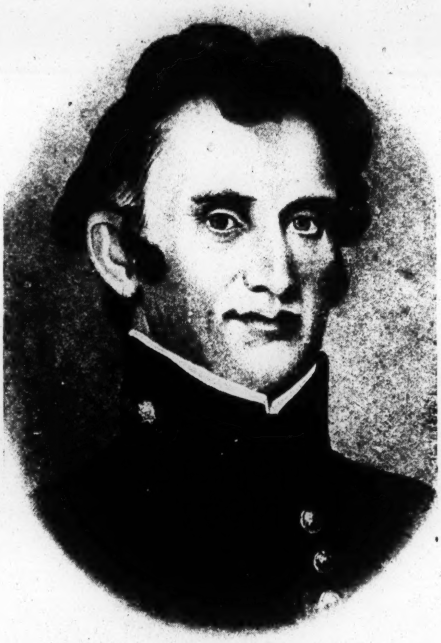


FIG. 7. WILLIAM BEAUMONT AT THE TIME OF HIS MARRIAGE.

In the early part of the nineteenth century the case of James Cann occupied the headlines of the Medical and lay press. Did he have hydrophobia? Did he have tetanus? If neither what was it? Cann was bitten in June, 1819, by a dog supposed to be mad. A few days later he developed symptoms which resembled hydrophobia and was given an infusion of scull-cap; he promptly recovered. In February, 1820, he again was seized with convulsion and in spite of scull-cap and other remedies, he died.

The complete history of the case is given by James A. Spalding in his life of his grandfather, Lyman Spalding, and forms an interesting supplement to this case of Beaumont which he reports on October 20, as "perfectly recovered and enjoys as good health and spirits as usual."

The Clinton County Medical Society, of New York, was formed October 6, 1807, when "eight physicians and surgeons met at the house of Israel Green, innholder in Plattsburgh, to organize a medical society." The meetings were held at the various village inns. January 19, 1809, they again met at the inn of Israel Green, and the following forms part of the entry in the records of the Society: "It takes a gentleman to keep a country inn, and Friend Green is the very man for it." At the meeting of the Society held January 19, 1819, Beaumont was admitted a member of the Society.

I have previously mentioned that Beaumont decided to remain in Plattsburgh after resigning from the army. Friend Israel Green, who was the proprietor of the popular inn, was a Quaker and a descendant of General Nathaniel Green of revolutionary fame. He had two attractive daughters, Anna and Deborah. Anna does not enter into the story; but Deborah, who was a young widow, eventually became engaged to Beaumont. One wonders whether the acquaintance began at some of the gatherings at her father's inn?

Samuel Beaumont, a cousin of William Beaumont, who is said to have read medicine with him between 1815 and 1819, received his license to practice from the Clinton County Society, and became a member in 1820. He was a favorite cousin of the doctor's and succeeded him when he retired from practice in 1819, and continued practice in Plattsburgh for many years. He comes again into the story in later years.

Beaumont never lost his interest in army life.

In 1818, Dr. Joseph Lovell was appointed Surgeon General of the army, and immediately set about reorganization of the service. With the establishment of the new grades introduced by Lovell, Beaumont applied for readmission into the army, and was commissioned post-surgeon by President Monroe on March 18, 1820, his rank to take date from December 4, 1819. He was immediately ordered to report to General Macomb for duty at Fort Mackinac.

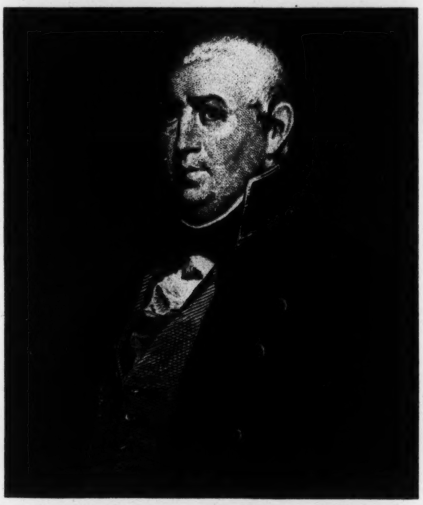


FIG. 8. ISAAC SHELBY, AFTER WHOM THE FIRST FORT AT PRAIRIE DU CHIEN WAS NAMED.

Before reporting to General Macomb, Beaumont left Plattsburgh on May 6, 1820 for a short visit to his relatives in Connecticut. On his return trip, he stopped at Auburn, New York, and visited the State's prison, the United States arsenal at Rome, and Hamilton College; he left for Buffalo by stage on May 26, reaching Buffalo May 27. On the 29th, he visited the Falls of Niagara, the battlefield at Lundy's Lane, Queenstown Heights, and crossed over to Lewiston where he spent the night. The next morning he resumed his sight-seeing and in the afternoon returned to Buffalo and went on board the Steamboat *Walk-in-the-Water* at Black Rock which got under way the next morning, at 9 o'clock, for Detroit. He remained in Detroit until June 14, when the *Walk-in-the-Water* left for Fort Mackinac having for his traveling companions, General Macomb and Colonel Wool, whom he had joined at Detroit. That evening he gave expression to his loneliness: "Oh! D— my heart a vacuum feels, your image only I can see; and wheresoever my body reels, my spirit wings its way to thee."

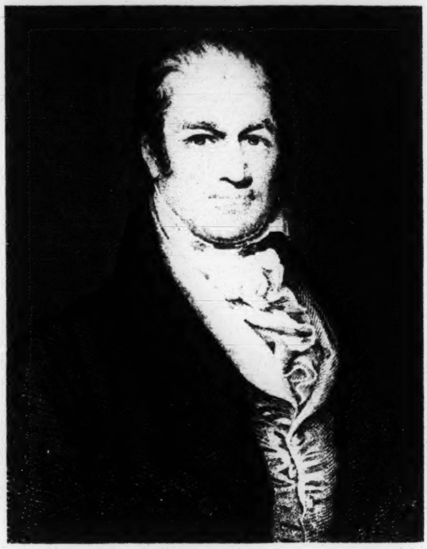


Fig. 9. William Crawford, after Whom "Old" and "New" Fort Crawford Was Named.

Late in the evening of June 16, he reached Mackinac. The following morning he attended inspection of the troops with General Macomb and Colonel Wool, and on June 18, 1820, he assumed charge of the Hospital and began his long and honorable service in the United States Army.

Beaumont always had the welfare of the soldiers under his care at heart. Shortly after his arrival at Mackinac an attempt was made to turn over a portion of the public gardens, within the reservation, to the Indian Department. Therefore, he sent a long communication to the War Department at Washington, protesting such action on the ground that it would deprive him of the means of making comfortable not only the sick, but also the soldiers and officers of the garrison, by depriving them of necessary vegetables. He evidently carried his case, for the Indian agency was built some distance east of the gardens. Those of you who have read Constance Fenimore Woolson's delightful story "Anne" know how she has immortalized the old agency house. During his stay at Detroit, Beaumont wrote Surgeon General Lovell requesting permission for private practice at Mackinac. This was granted "provided it does not interfere with your official duties. They cannot, however, be furnished from the public chest." We, therefore, find Beaumont treating all kinds of injuries to which the motley crowd of Indians, voyageurs, and traders were subject, in addition to his duties in the garrison.

When Beaumont reentered the army, he left behind him at Plattsburgh his fiancée Deborah (Green) Platt. She was a "young woman of much culture, and great strength of character, generous, genial, industrious, sympathetic, and endowed with physical beauty." It is not surprising that his whole heart was not in his work, and that he missed her companionship. Accordingly he applied in March, 1821, for leave of absence to return to Plattsburg to be married. He found some one to supply his place during his absence, and left August 9, 1821, for Plattsburgh where he was married August 28, immediately returning to Mackinac.

On their arrival they took up their residence in the eastern portion of the officers' quarters. Mrs. Beaumont showed her Quaker lineage by her hospitality, and exercised a refining influence over her husband's fellow officers. No doubt her training in her father's inn at Plattsburgh was of material assistance. In time their life was brightened by the birth of their little daughter, Sarah.

The history of the American Fur Company, interesting as it is, forms too long a story to be told here. The War of 1812 put an end to the ambitious schemes of John Jacob Astor, and Mackinac became the center of a series of trading posts. Later, another of his posts, Prairie du Chien, entered into the life of Beaumont. In the meantime, however, an important event happened at Mackinac, important in the life of Beaumont, and important in the history of physiology.

On June 6, 1822, the retail store of the American Fur Company was crowded with Indians and voyageurs who were busily engaged in exchanging their pelts for other commodities. "A gun was accidently discharged and a young voyageur dropped to the floor, with a cavity in the upper abdomen that would have admitted a man's fist." Such is the origin of the wound in the stomach of Alexis St. Martin. So much has been written from the physiological standpoint, about this wound, that I pass it over.

At the time of the accident St. Martin was far from home and without any relatives to care for him; he, therefore, became a charge on the Town and County of Mackinac. Eventually the County refused further assistance and were about to transport him a distance of 2000 miles in an open batteau to his native place. It was because of this contemplated "inhuman" treatment that Beaumont in April, 1823, took him into his own family and supported him, though his salary was only $40.00 a month with two to four rations daily. This indifference to St. Martin's need led Beaumont to jot down a sarcastic soliloquy on Charity, in which he took the people of Mackinac to task for their treatment of St. Martin. Eventually St. Martin made a good recovery. In June, 1824, Beaumont was able to record that St. Martin could perform any kind of labor, though the opening into his stomach still remained. The statement is made by Hubbard that the wound was purposely kept open. Such, however, was not the case. Beaumont even proposed freshening the edges of the wound and closing it with sutures; but St. Martin would not consent to the operation.

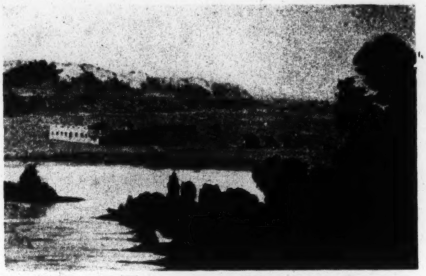


FIG. 10. OLD FORT CRAWFORD WHERE DR. BEAUMONT WAS STATIONED.

In the latter part of May, 1825, Beaumont was transferred to Fort Niagara, where he published his first series of four experiments; but previous to his removal he had begun in a desultory way at Mackinac a few experiments. In July he was granted a two months' furlough and he left Niagara for Plattsburgh, taking Alexis with him. The proximity of Plattsburgh to his old home in Canada caused Alexis to take "French leave," and the experiments came to a temporary end.

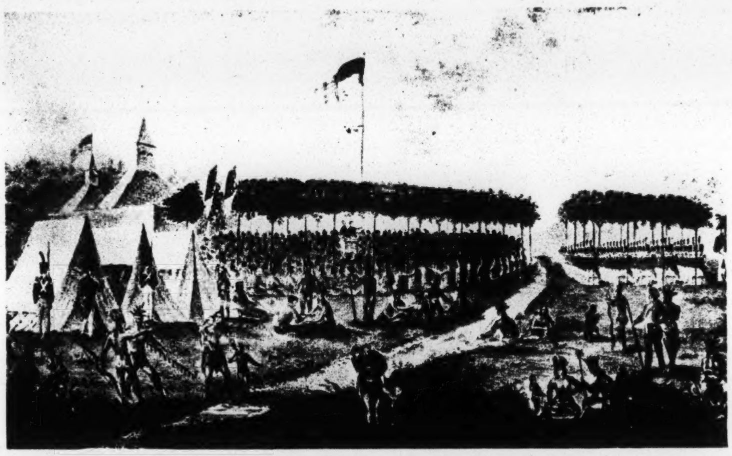


Fig. 11. The Great Council of 1825. (From Lewis.)

Late in May, 1826, Beaumont received orders to accompany the troops to Fort Howard, Green Bay. In his reply, acknowledging the receipt of the order, he requested from Surgeon General Lovell permission "to prescribe for the citizens of Green Bay." Permission was granted with the same restrictions attached as in the case of Mackinac. Beaumont's detachment reached Fort Howard early in June, 1826, and on June 18, he reports the "Hospital entirely destitute of every means of comfort save medicines," and requests that the equipment at Sackett's Harbor be transferred to Fort Howard.

Fort Howard was built in 1816, and consisted at first of a high stockade which enclosed the parade ground, barracks, officers' quarters, block-houses, and other buildings. The hospital and surgeons' quarters were outside the fort; later the Fort was enlarged, but the hospital was still outside the fort. In 1827, Beaumont reports improved conditions; but in 1828 he suggests to the government inspector that the surgical instruments should be sent to New York for repairs and that additions be made to the Medical Library.

Beaumont always had the interest of the service in mind and did what he could to improve it. He was the first physician to introduce vaccination in order to check the epidemic of smallpox in the Fox River Valley in the winter of 1827–28. In 1827, he accompanied Colonel Whistler to the Portage, later Fort Winnebago, and witnessed the dramatic surrender of the Winnebago Chief, Red Bird.

Beaumont spent two enjoyable years at Fort Howard, built up a reputation as a successful practitioner and surgeon, and acquired considerable property which is still in the possession of members of the family.

In 1828, Beaumont was ordered from Fort Howard to Fort Crawford, Prairie du Chien, Wisconsin, where he arrived August 10, 1828. Beaumont's life at Fort Mackinac, and at Fort Howard, has been described by Myer, and that at Fort Howard has also been described by Deborah Beaumont Martin. Although Beaumont's second series of experiments (56 in number) were conducted at Fort Crawford, beyond the bare fact practically nothing has appeared in print concerning Beaumont's life at Prairie du Chien except the few items given by Myer, and a publication by myself.

The flood plain situated just above the confluence of the Wisconsin with the Mississippi has played an important part in the conquest of the North West. "It was a convenient meeting place for the Indians and the traders of the Upper Valley." In 1685, a Frenchman, by the name of Perrot, established a series of forts, or trading posts, along the banks of the Mississippi, and one of them was situated on the lower edge of this plain. By another century Spanish, British and American traders had come into this region, and a trader's war was carried on between them for the control of the fur trade and for the territory bordering on the Mississippi. For a time the Spanish and British held the upper hand, but with the "Louisiana Purchase" in 1803, both sides of the Missisippi came under the control of the Americans.

On the declaration of war with Great Britain in 1812, the British called the Indians to their aid. Robert Dickson "became a successful recruiter of Indians for the British service," and was appointed superintendent for the Indians west of Lake Michigan. There was danger of the control of the Upper Mississippi passing into the hands of the British. This led to the building of a fort in 1814 at Prairie du Chien, which was named Fort Shelby in honor of the Governor of Kentucky. As soon as this was known, a force of British sympathizers and Indians was assembled by Dickson and under the command of Lieut. Colonel McKay, marched against Fort Shelby. They arrived at Prairie du Chien July 17, 1814. After a two days' siege the fort surrendered, and was rechristened Fort McKay, in honor of its captor. On May 20, 1815, official word reached Fort McKay that peace had been restored between the United States and Great Britain, and two days later, May 22, 1815, the fort was evacuated and the British control of the Upper Mississippi ended.

The signing of the treaty at Ghent did not, however, bring peace to the Northwest. The British traders still held their influence over the Indians and at the same time continued to smuggle goods from Canada into the Upper Mississippi Valley; then, as now, whiskey was an important item. To close the line of communication and reassert control over the Northwest, the U. S. War Department decided to erect a series of forts, and one of them was located at Prairie du Chien.

Fort McKay had been burned after its evacuation by the British. The new fort, which was named Fort Crawford in honor of the Secretary of War, was built in 1816, on the site of the former Fort Shelby, or, as it was called after its occupation by the British, Fort McKay.

George D. Lyman, in his interesting story of "John Marsh, Pioneer" subagent at Prairie du Chien during Beaumont's residence, has given the following description of the fort.

Fort Crawford . . .

> . . . was built on the flat flood lands of the Mississippi; and although grey, quaint and interesting it had the squat appearance of the block forts that once dotted

our fur-trading frontier. With the exception of the magazine, there was little stone in its construction. Wooden palisades twenty feet high enclosed its gravelled parade ground. Barracks, quarters, stores, and warehouses for a garrison of five companies were banked against the walls. It was fortified at opposite corners by two square bastions of two stories each, surmounted with artillery, as well as loopholes for muskets, and apertures for field pieces.

The location was unfortunate. Being situated on the flood plain of the Mississippi it was subject to occasional inundation; for, in its early as well as in its late history, the Mississippi has overflowed its banks. In 1822, a flood covered the parade with between three and four feet of water and, entering the quarters of the garrison, it compelled the officers and soldiers to encamp for nearly a month on the high ground back of the fort. Atwater describes the situation of the fort as being too low, and "that nearly every summer, during the dog days, its site is under water from six to ten feet in depth, from the overflow of the river." From this time on a series of reports to the War Department criticised the situation of the fort, not only because of its being subject to floods which saturated the floors and timbers of the fort with a damp sediment which caused much sickness, but also because it was undesirable from a military stand-point. Matters were hastened by a flood in May, 1826, which covered the site of the village of Prairie du Chien and the fort with such a depth of water that steamboats could pass over it, and caused the fort to be abandoned for the time being.

Daniel S. Durrie in the Annals of Prairie du Chien says: "In the month of May, 1826, occurred a great flood of the Mississippi, the highest of more modern times. The water at Prairie du Chien reaching twenty six feet above low water mark. The troops abandoned the fort and took possession of the higher ground east of the slough."

An official inspection of the fort in August, 1826, showed that it was "unfit for occupancy without extensive repairs." This fact, taken in connection with its frequent inundation, led to the issuing of an order in October, 1826, for its permanent abandonment. Early in 1827, however, the threatened outbreak of war with the Winnebago Indians caused the reoccupation and repair of the fort.

It was into these surroundings that Beaumont moved when ordered from Fort Howard, where he and his wife had formed many friendships in the garrison and in the little village of Green Bay on the opposite side of the river, and where they had been comfortably housed.

Atwater mentions some of the hardships with which the officers and their families had to contend at Fort Crawford:

> Lieut. Col. Z. Taylor, ("Rough and Ready") has been in the Indian country constantly with his family about twenty years. Here he and his lady, who were bred up in the most polished and refined society, have been compelled to rear up as well as they could a worthy and most interesting family of children. Col. Taylor commands Fort Crawford, at Prairie du Chien. Dr. Beaumont and his amiable and accomplished lady; Major Garland and his, belonging to this Garrison, are doing the same. It is an interesting sight, to see such persons located as they are, in a fort, on the very verge of civilized life, educating a family of young children.

The officers of the fort had a library and reading room, which they maintained at their own expense, that contained not only general literature, but also works on geography, mathematics, chemistry and other sciences connected with their profession.

Where Beaumont lived at Fort Crawford is uncertain. At Fort Howard the surgeon's quarters were outside the fort proper, but at Fort Crawford they seem to have been within the fort. Lockwood, in his "Early Times and Events in Wisconsin" says: "In 1831 it [the new fort] was occupied with a part of the troops, leaving the sick in the old hospital, and the surgeon in the old fort."

St. Martin left Beaumont in September, 1825, and remained in Canada four years; during this time he married and had two children. In 1827, W. W. Matthews, an agent of the American Fur Company, discovered the whereabouts of St. Martin and communicated the same to Beaumont; but it required two more years before he could be induced "after considerable difficulty, and at great expense," to again enter the employment of Beaumont. At the end of that time, in August, 1829, St. Martin and his family were transported from Canada to Prairie du Chien, Wisconsin, a distance of nearly two thousand miles. Here he remained until March, 1831, and:

> During this time, in the intervals of experimenting he performed all the duties of a common servant, chopping wood, carrying burthens, etc., with little or no suffering or inconvenience from his wound. He labored constantly, became the father of more children, and enjoyed as good health and as much vigor as men in general. He subsisted on crude food, in abundant quantities, except when on prescribed diet, for particular experimental purposes, and under special observance.

The quarters occupied by St. Martin at Mackinac are known; but where he lived at Prairie du Chien and where Beaumont's experiments were performed is uncertain. As already stated, it is probable that Beaumont occupied quarters within the old fort, and St. Martin must have lived in the immediate neighborhood; for "he performed all the ordinary duties of a common servant." The experiments could not have been performed at the hospital connected with the new fort, for it was not completed until after Beaumont left Prairie du Chien; it seems quite probable, therefore, that they were performed in the log hospital connected with the old fort.

Thus it seems that, though Beaumont performed fifty-six of his experiments at Prairie du Chien and that in many respects they were of great importance, for they formed the basis of all later work, no trace can be found of where they were done. That Beaumont had the reputation of being one of the best, if not the best, physician in the northwest, is shown by the fact that John H. Kinzie, Indian Agent at Fort Winnebago, took his mother to Prairie du Chien in the fall of 1831, "For the benefit of medical advice from Dr. Beaumont of the U.S. Army."

Early in 1829 the commandant of Fort Crawford was directed, without delay, to select a new site for the fort. A preliminary survey had already been made, and a plot about two miles south of the "old fort" was selected and purchased. Work was begun in May, 1829, on the new fort (the old name being retained, they spoke of the "Old Fort" and the "New" Fort Crawford), but it was not completed until 1834, work being interrupted by the Black Hawk War and an epidemic of cholera.

In the summer and fall of 1830, an epidemic of intermittent fever prevalied at Prairie du Chien; this led Beaumont to jot down notes on its cause; but, although he correlated the numerous stagnant pools of water and the marshes with the appearance of the disease, he did not suspect the true cause.

Old Fort Crawford was the scene of many notable events. In 1825 there was held at Prairie du Chien what is known as "The Great Council of 1825." This was an effort by the government to bring about peace between the various tribes of Indians living in the Upper Mississippi Valley. The commissioners appointed by the government were Lewis Cass, Governor of the Territory of Michigan and William Clark of Missouri. This was a most colorful gathering; "and fortunately an artist—James Lewis was present to catch and preserve the details of the scene."

The treaty signed at this time was not, however, kept long. The Winnebago Indians were a restless tribe and constantly threatening an outbreak. In 1829 President Jackson appointed General John McNeil and Colonel Pierre Menard commissioners to obtain title to "certain mineral lands claimed by the Winnebago, Pottawattamie, Ottawa, and Chippewa Indians east of the Mississippi and south of the Wisconsin." In May, 1829, Caleb Atwater of Ohio was appointed a third member of the commission. After various difficulties had been overcome the council was held at Prairie du Chien in the place of Rock Island which had been the first choice, not of the Indians, but of the government.

Beaumont was not at Prairie du Chien when the Council of 1825 was held, but was there when that of 1829 was held. No artist was present to depict this scene which has been well described by Mahan:

> The Commissioners sat on a raised bench facing the Indian Chiefs; on each side of them were the officers of Fort Crawford in full dress uniform; while the soldiers in their best attire were drawn up on the sides of the council shade. The ladies belonging to the officers' families, and the best families of the Prairie were seated directly behind the commissioners where they could see all that happened and hear everything that was said. Behind the semi-circle of Indian chiefs, sat the men, women, and children of the Winnebago, Pottawattomie, Chippewa, Ottawa, Sioux, Sauk and Foxes, and Menominee to the number of thousands.

Eventually treaties were concluded with the various tribes, and some 8,000,000 acres were obtained through purchase.

The new fort also had an interesting history. It was here, while under the command of Col. Zachary Taylor, that Lieutenant Jefferson Davis wooed and won the heart of Sarah Knox Taylor, the daughter of his commanding officer, and, in spite of parental opposition, married her. The oft-told tale that they eloped is not true; they were married at the home of her father's sister, near Louisville, Kentucky, with the knowledge, but without the approval, of her father.

Lieutenant Jefferson Davis was first stationed at Fort Winnebago (now Portage, Wisconsin), and near the close of 1828 was sent to Fort Crawford (Prairie du Chien); in 1829 he was again at Fort Winnebago; and in 1831, during the Black Hawk War, he was at Fort Crawford. After the capture of Black Hawk the latter was sent by General Scott, under the escort of Lieutenant Jefferson Davis, to the Jefferson Barracks at St. Louis. In October Davis was again back at Fort Crawford and was sent by Colonel Taylor to induce the trespassers on the west bank of the Mississippi to return again to the east bank until the Indian title could be extinguished. This he succeeded in doing; and it was always a source of gratification to Davis in later years. It is interesting to note that during the five years in which Davis served alternately at Fort Crawford and Fort Winnebago he maintained a slave (James Pemberton) as a body servant. In 1833 Davis was commissioned a Captain and stationed at Fort Gibson, Oklahoma. At the end of a year and a half he resigned from the army. Shortly after Davis was ordered to Fort Gibson, Miss Taylor went to live with her aunt at Beechland, near Louisville, Kentucky; there in June, 1835, Jefferson Davis and Sarah Knox Taylor were married. They went at first to "The Hurricane," his brother Joseph's plantation, going by boat down the Ohio and the Mississippi. Joseph Davis gave his brother, Jefferson Davis, 1000 acres next his own plantation. This was later known as "Brierfield Plantation." A house was built and named "Brierfield." When the "fever season" was on, Davis and his wife went down to his sister's home near Bayou Lara, Louisiana, to escape the fever; but they lingered too long and both were victims of malarial fever. Sarah died September 15, 1835, and her body rests in a lonely grave in Feliciana Parish, a few miles from Baton Rouge. Davis made a slow recovery.

In the outskirts of Louisville, not far from the scene of her marriage, in a rude tomb in an unkept, lonely cemetery, rest the bones of her distinguished father; while far removed from the bride he loved and the father he estranged, the body of Jefferson Davis rests in beautiful Hollywood in Richmond, Virginia, the capital of the Confederacy he labored so enthusiastically to establish.

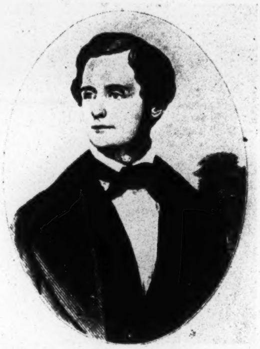


FIG. 12. JEFFERSON DAVIS IN EARLY MANHOOD.

During the Mexican war Davis and Taylor again met and the early friendship was in a measure renewed.

Fort Crawford no longer exists. "As long as the Winnebago Indians remained in Wisconsin there was need for a garrison at Fort Crawford." Eventually a treaty was concluded with the Winnebago which was proclaimed the law of the land on February 4, 1847. Under the terms of this treaty they agreed to remove to a new home in Minnesota. This was finally accomplished in the summer of 1848, and Fort Crawford, being no longer needed, was evacuated in April, 1849. After its evacuation the fort had a checkered career, and was finally sold at auction in 1868. Its site is now occupied by Saint Mary's College, a school for girls. The only part of the fort remaining is the ruin of the hospital.

The military cemetery which at one time was an unkept plot is now "a well-kept park with a wide graveled walk leading up to it, and an ornamental fence surrounding the grounds . . . Most of the graves are marked 'Unknown'; but the graves of the officers who died at the fort are marked." Two inscriptions tell of girl brides who left eastern homes to share the privations of wilderness life with their soldier husbands.

A brilliant list of names is associated with Fort Crawford and the Black Hawk War. Abraham Lincoln, Zachary Taylor, Winfield Scott, Jefferson Davis, A. C. Dodges, Albert Sydney Johnston, David E. Twiggs, Robert Anderson, and others who became senators, governors or generals.

Early in 1831 circumstances made it expedient for St. Martin to return to Canada, and this time he went with the consent of Beaumont; who felt sure that St. Martin would keep his promise to return for further experiments. In the meantime, however, Beaumont felt the need of such assistance as only a physiological chemist could give. Knowing that there was no reliable person in this country, he applied for a furlough of one year, to begin in September, 1831, in order that he might go abroad with St. Martin.

On May 23, 1831, Surgeon-General Lovell wrote Beaumont that as soon as arrangements could be made to relieve him, the furlough would be granted. Accordingly on July 13, 1831. "Special Order No. 78" was issued from the adjutant-general's office directing Assistant-Surgeon Elwers to relieve Beaumont, and permission was granted to visit Europe. The way now seemed clear for Beaumont to carry out his plan to obtain the aid of the physiological chemists in Europe. But just as he was ready to start, "Special Order No. 127" was issued on October 24, 1831, stating that: "The public service will not permit the absence of Surgeon Beaumont from duty at this time; accordingly the indulgence intended to have been accorded him in Special Order No. 78 is recalled until otherwise directed."

The occasion of this recall was the threatened outbreak of the "Black Hawk Indian War," which actually began in the spring of 1832. Fort Crawford was near the center of this disturbance, and Beaumont went out with the troops from the fort to take part in the hostilities. With the defeat of Black Hawk in the battles of July 21 and August 2, 1832, peace was restored and Beaumont returned with his regiment to Prairie Du Chien.

In the meantime Asiatic cholera broke out in the troops which were being rushed from Fortress Monroe and from New York Harbor, and the disease was spread broadcast by the desertion of soldiers who attempted in this way to escape infection. Troops marching from Chicago to Fort Crawford carried the disease to Prairie du Chien and the Upper Mississippi. Although they did not reach the seat of war until after the conflict was over, they suffered more severely than the troops which took part in the conflict. These two events gave Beaumont new experiences; in fact the Black Hawk War was afterwards called the "cholera campaign" in army circles.

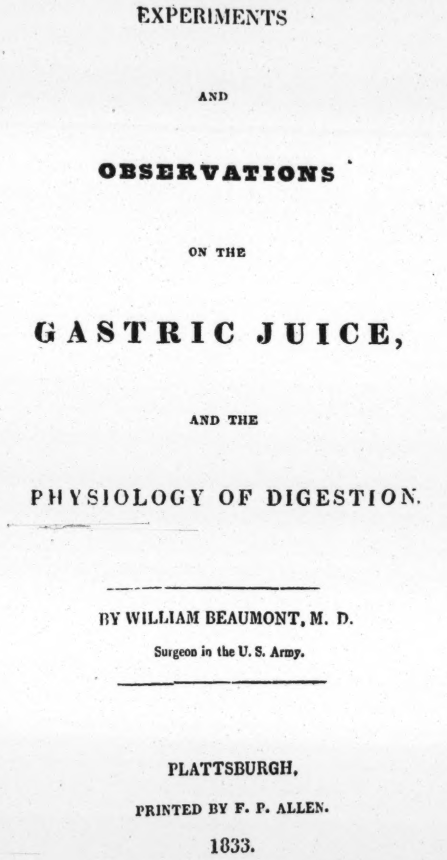
Early in June, 1832, "Special Order No. 79" was issued from the adjutant-general's office which granted to Beaumont a six months' furlough, with permission to visit Europe, "as soon as his services can be dispensed with."

The Black Hawk War being over and the cholera epidemic under control, Colonel Zachary Taylor, the commandant at Fort Crawford, issued August 22, 1832, the final order which permitted him to leave Fort Crawford and at the same time directed him to attend the wounded militia as far as St. Louis where they were to be left in the hospitals. He evidently left Fort Crawford the following day, and after attending the wounded militia as far as St. Louis, immediately left for Plattsburgh. In September he reported himself, and his family, there, "in quest of his man St. Martin," who promptly, according to his promise, put in his appearance, and on October 16, 1832, a lengthy and unique contract which is quoted in full by Myer, was drawn up and signed by Beaumont and St. Martin in the presence of three witnesses.

Beaumont found that when the time going and returning was taken into consideration, his leave of six months was too short to accomplish any definite results. He, therefore, decided to spend the remainder of his furlough in Washington where he would have access to the literature on the physiology of digestion.

From Washington under date of January 7, 1833, Beaumont wrote Thomas P. Barnett, Sub-Indian Agent at Prairie du Chien.

> It is with peculiar pleasure and satisfaction, that I reflect upon the scenes of social enjoyment, incident to our residence at Prairie du Chien, and more especially our last journey down the Mississippi, and short sojourn at St. Louis. There is indeed an abiding happy impression made upon the mind, by the manifestations of ingeniousness and magnanimity of soul, widely different from that produced by the commonplace, every-day, poorly disguised, cold, hollow-hearted, affectedness of fashionable society, of which this place is the seat and center, and than which nothing can be more discordant to the present state of my feelings.



EXPERIMENTS

AND

OBSERVATIONS

ON THE

GASTRIC JUICE,

AND THE

PHYSIOLOGY OF DIGESTION.

BY WILLIAM BEAUMONT, M. D.
Surgeon in the U. S. Army.

PLATTSBURGH,
PRINTED BY F. P. ALLEN.
1833.

Fig. 13. Title Page of the First Edition of Beaumont's "Experiments."

Evidently Washington society was much the same in 1833 as it is today.

Now for the first time Beaumont was relieved of some of the financial burden which he had carried on account of Alexis. Through Surgeon General Lovell, Alexis was made a sergeant in a "detachment of orderlies stationed at the War Department" and received $12.00 a month in cash;

$2.50 a month for clothing, and ten cents a day for subsistence.

During his residence in Washington Beaumont entered into correspondence with Robley Dunglison, of the University of Virginia, and Benjamin Silliman of Yale, seeking aid in the solution of his problem, with little success; in fact Dunglison wrote later that he had arrived at the conclusion that the precise constituents of the gastric juice may never be accurately determined.

On the expiration of his furlough, Beaumont was ordered from Washington to New York City and a furlough of three months was granted to Alexis in order that he might accompany him. After a stay of six weeks in New York Beaumont made a special trip to New Haven in order to have a personal interview with Professor Silliman. At the suggestion of Professor Silliman, Beaumont sent a generous sample of gastric juice to Professor Berzelius, at Stockholm, Sweden, accompanied by a letter requesting an accurate analysis; but the reply, when it came, was most disappointing; in fact the analyses of the American chemists were more satisfactory.

From New Haven Beaumont went to Plattsburg where he found his cousin, Dr. Samuel Beaumont, and thought he could give him material aid in preparing the notes of his experiments for publication in book form.

On June 1, 1833, Dr. Beaumont wrote Surgeon General Lovell of his plans for publication, and also suggested that since his duties in New York were "little or nothing, except examining recruits," which could be done as well at Plattsburgh or Burlington, that he be transferred to one or the other place.

In the meantime Alexis went to Canada on account of the death of one of his children, but he kept his promise to return. Beaumont heard nothing from Washington in regard to a transfer to Plattsburgh or Burlington. Accordingly he wrote on July 1, expressing his disappointment and fears that Alexis may not be contented to remain. The department promptly issued order No. 101 in which Surgeon William Beaumont was ordered to Plattsburg for duty.

Alexis' furlough for three months had elapsed; he was, therefore, dropped from the detachment of orderlies at Washington and mustered to the adjutant-general's office by Beaumont and made subject to his orders. This enabled Beaumont to carry on at Plattsburgh his fourth series of experiments which extended from July 9 to November 1, 1833.

On July 29, 1833, Beaumont filed with the clerk of the southern district of New York the title of his book.

> Be it Remembered, That on the Twenty-ninth day of July, Anno Domini 1833, William Beaumont, M.D., of the said District, hath deposited in this Office the title of a Book, . . . the title of which is in the words following, to wit: Experiments and Observations on the Gastric Juice and the Physiology of Digestion, by William Beaumont, M.D., Surgeon in the U. S. Army.

It was decided to sell the book by subscription, and prospectuses or "proposals" with space for the signature and address of the subscriber were sent out. Myer reproduces one of these proposals with a few of the signatures. The last name on the list is that of Elisha North, New London, Connecticut. I own the book Elisha North subscribed for and it bears his autograph, also the purchase price. In the proposal the price is given as three dollars, but two dollars seems to have been the price at which it was sold; for I have found the record of the purchase of several copies and it is always given as two dollars. Fifty copies of the book were bound in full leather; these were probably for presentation or sold at a higher price for it cost eight cents each to bind in boards, and twenty-eight cents each to bind in full leathers. I have never seen a copy bound in leather.

The early part of 1834 was spent by Beaumont in a vain attempt to secure some remuneration from the Government for the expenses he had incurred while carrying on his investigations. This attempt was renewed in 1835 with like results; though Congress authorized the purchase of one of Boyd Reilly's "patent vapor baths."

On March 4, 1833, Beaumont was sent on a tour of inspection of various hospitals. This occupied his time between April 16 and May 9. Shortly after his return from the tour of inspection he made a short trip, exhibiting Alexis to various medical societies, one of which was the Connecticut Medical Convention. For this Milo L. North and Edward P. Terry of New Haven sent him May 15, on behalf of the Convention, a vote of thanks.

Immediately after their return from the trip in which Alexis was exhibited to various medical societies, he was given permission to visit his family in Canada, with the proviso that he would meet Dr. Beaumont in Plattsburgh by June 15, and accompany him to Jefferson Barracks, St. Louis, the new post to which he had been ordered.

After waiting some time in Plattsburgh for Alexis, Beaumont was compelled to go on without him. Although strenuous efforts and attractive offers were made, Alexis could not be induced to again enter the service of Beaumont.

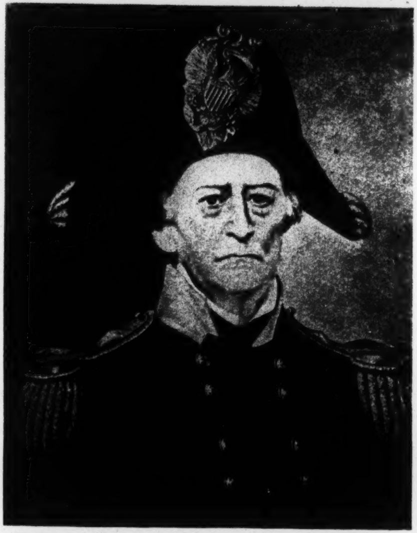


Fig. 14. Surgeon-General Lawson. Compare with Figure 6, and Note the Difference in Expression.

Although Beaumont was not entirely satisfied with the conditions at Jefferson Barracks, he remained there during the summer and fall of 1834. On September 4, he received information that Surgeon Foot, who had been the cause of dissatisfaction, was to be transferred to Fort Winnebago and that he was to go to Fort Crawford. The transfer was promised for November; but Beaumont became impatient and requested leave of absence in order that he might return to Plattsburg and bring on his family. In the early part of November, after the receipt of the order, Beaumont left on a three-months' leave for Plattsburgh.

On the way North he stopped at Washington and had a conference with the Surgeon General. Although he had expressed a preference for the assignment to Fort Crawford, the conference at Washington decided him to remain at St. Louis (possibly it was intimated to him that Fort Crawford was eventually to be abandoned). He left Plattsburgh in January, 1835 with the understanding that he was to return for his family in April. Beaumont reached St. Louis about February 1, 1835, and on March 18, he left St. Louis for Plattsburgh where he arrived early in April, and made the necessary preparations for the removal to St. Louis. When these were completed he took his family over the route he traversed when he went to Mackinac in 1820. It was his intention to proceed overland from Green Bay to Prairie du Chien, and down the Mississippi to St. Louis. On June 26, he reported himself sick at Green Bay and asked for an extension of his leave of absence. Evidently this was nothing serious, for on July 23, he reported his safe arrival at St. Louis in good health and on August 1, all were comfortably settled at the arsenal three miles south of St. Louis. Now for the first time since leaving Fort Crawford in 1832 he had his family with him at his post of duty. Having applied for, and received, permission to practice medicine in this city, he moved into St. Louis and quickly built up a busy practice.

With the death of Surgeon General Lovell on October 17, 1836, Beaumont lost his best and most sympathetic friend; one who appreciated what he had done and who had given him every opportunity in his power to carry out the work he began at Mackinac.

Thomas Lawson succeeded Lovell as Surgeon General; he had been associated with Beaumont in the sixth Regiment Infantry in the war of 1812 and one might suppose that he would continue the old friendship; but far from it. There seems no doubt that he was jealous of the reputation Beaumont had acquired, and resented the many favors which had been shown him by his predecessor. We find, therefore, that within a year of the appointment of Lawson as Surgeon General, Beaumont began to feel his animosity. Rumors began to reach Beaumont that he was to be transferred from St. Louis to the Jefferson Barracks which would prevent him from practicing in St. Louis.

Early in 1837 Beaumont requested a leave of absence in order to attend to his business interests in Green Bay. To this Lawson replied that "similar requests from officers having much stronger claims to indulgencies than yourself have been refused on account of the pressing demands for Medical officers, your request cannot be granted." He then goes on to say that if he will personally supply a suitable physician at his own expense his request will be granted "provided it meets the approbation of the Commanding General of the Department."

A special army friend, Major Hitchcock, ascertained what Lawson's intentions were, and informed Beaumont of them. This led Beaumont to write Lawson a sharp, and anything but diplomatic, letter.

On September 18, 1839, Beaumont was ordered to Florida as a member of a Medical Board. "On the receipt of this order Beaumont tendered his conditional resignation, providing the department still insisted on his going to Florida." This the Department insisted on, and also refused to consider his resignation until he was in Florida.

Efforts were made to change the mind of the Surgeon General; but he had long before decided to get rid of Beaumont; so on January 20, 1840, Beaumont's resignation was officially accepted. Efforts were made to have Beaumont reinstated, but a final decision had been made, and Beaumont's brilliant career as a military surgeon came to an end after more than twenty-five years of service.

Beaumont felt his dismissal from the army keenly, but he did not allow it to embitter his life. He still had a lucrative practice and many friends in St. Louis. He had already looked about for a desirable residence and found a place, at that time well outside the city, which met his requirements. Here he established a home to which came "a choice few friendly visitors occasionally from the city to enjoy our cheer; plenty of room to amble and ride, swing, frolick, and gambol; indeed, a few things only seem wanting to make it a paradise."

Beaumont's practice increased and he had various partners; none of them proved to be satisfactory. He made an offer to his cousin, Dr. Samuel Beaumont, to come on from Plattsburgh and be his assistant. With regard to his practice he says: "I decline more practice daily than half the doctors in the city get in a week." He also says that he has to combat professional jealousies. "But I triumph over them." Samuel declined the offer as he could not make up his mind to "play second fiddle."

Beaumont became a member of the Medical Society of Missouri, and was one of its earliest members. In 1838 he was elected vice-president, but soon resigned; on May 8, 1840 he was elected president of the society. Medical societies at that time, like some of the present day, had their discords arising from petty jealousies, and Beaumont had many of them to contend with—unsuccessfully; for the minutes of the society record for meeting after meeting—"no quorum." He, himself, was subject to numerous attacks from his professional brethren; some of whom accused him of malpractice and he was hailed into court to defend himself; this he successfully did in every instance.

Beaumont's opinion of his fellow practitioners was expressed in a letter to Dr. John McCall, of Utica, New York, declining his invitation to attend the first meeting of the American Medical Association, held in New York the first Tuesday in May, 1846, he says:

> You will doubtless have a specimen of the variety of professional talent and indisposition of our medical community; the honorable high-minded and nobly aspiring young minds, radiant with vanity, but not deficient in sound sense and professional skill and acquirements; the insidious, jealous and obsolescent minds; the egregiously egotistical and ignorant blockheads and dunces; some mean and vindictive, and others on a descending scale even down to the very bottom of baseness and rascality. I presume these will not all be there, but you can readily designate with sufficient accuracy these different characters and dispositions by merely asking a few questions about me; their answers will indicate the meanness and magnanimity of their souls, if they have any.

In the early part of 1846, Mr. Chauncey Goodrich of Burlington, Vermont, wrote Beaumont proposing the publication of a second edition of his book. The matter was taken up not only with Goodrich, but also with his cousin Samuel. On March 16th, satisfactory terms were arranged.

Beaumont does not seem to have had any knowledge of further transactions, for he writes Samuel asking for information. In reply, Samuel wrote on November 8, 1847, that the new edition came out the previous May. He also wrote that the publisher had introduced on the title page, "Corrected by S. Beaumont, M.D." This he tried to have suppressed, and a new title page substituted without his name; but never received an answer to his letter.

In 1849 Beaumont moved from his country home into the city. Increasing age and demands on his time; the marriage of his daughters; and all the children being away from home, were the determining factors. In the spring of the same year St. Louis was invaded by an epidemic of yellow fever, and for four months Dr. Beaumont, though now sixty-four years old, fought again, as at Fort Crawford, a battle with the scourge.

In March, 1853, on his way home from the bedside of a patient late in the evening, he slipped on some ice-covered steps, striking his head violently. Stunned by the fall he wandered about until found by a friend who accompanied him home. He recognized the seriousness of his injury and prophesied its termination. "A few weeks later he developed a carbuncle on his neck, accompanied by an intractable fever, and on April 25th he died." His wife survived him many years and died January 23, 1870. They are both buried in that beautiful cemetery at St. Louis, Bellefontaine.

During his lifetime the following honors came to Beaumont: Under date of March 3, 1825, John S. Whiting, Secretary of the Medical Society of the Territory of Michigan, wrote Beaumont that he was "unanimously elected by Ballot an honorary member of this Society." In recognition of his researches, the Columbian College of Washington, D. C., through the instrumentality of Thomas Sewall, professor of anatomy, and Surgeon-General Lovell, conferred on Beaumont March 6, 1833, the honorary degree of Doctor of Medicine. July 10, 1883, Charles Hooker, Secretary of the Connecticut Medical Society, wrote Beaumont that at the meeting of the Society in May, he had been elected an honorary member.

In 1835 Beaumont opened an office in Saint Louis. Within a year of his settlement in Saint Louis it was decided to establish a school of medicine in connection with the Saint Louis University, and on October 4, 1836, he was offered the chair of surgery. At first he declined the offer on account of his connection with the U. S. service; but the trustees persisted in their effort to obtain his consent. Accordingly on October 31, 1836, he wrote the surgeon-general asking for his opinion, saying, "I should prefer, in your reply, a good excuse for non-acceptance." At the end of three and a half months, receiving no reply to his letter, he accepted, provisionally, the chair of surgery. The plan for a medical school did not materialize until 1842; there is, however, no evidence that Beaumont ever delivered any lectures, though "he promised to deliver a single course of lectures on digestion in 1851, provided he could succeed in procuring Alexis." On August 22, 1840, Beaumont was made a corresponding member of the National Institution for the Promotion of Science at Washington, D. C.

In his address at the dedication of the Memorial at Mackinac, Dr. Frank J. Lutz said "In 1885 there was added to many institutions of learning in the city of his adoption, a school of medicine, and it was singularly appropriate that it should be made commemorative of him whose reputation throughout the scientific world had shed luster upon Saint Louis." Accordingly the name Beaumont Medical College was adopted. In process of time (1901) this became the Marion-Sims-Beaumont College of Medicine, and in 1903 both were merged with the present School of Medicine of St. Louis University.

NOTE: After the completion of this manuscript I found at the State Historical Society of Wisconsin the original letter of Beaumont to Sub-Indian Agent, Thomas P. Burnett, at Prairie du Chien, dated from Washington, January 7, 1833. I have already quoted that portion of this letter found in the Wisconsin Historical Collections; but further on in the letter Beaumont makes the following statement, which throws new light on the reason why he did not go to Paris after leaving Prairie du Chien.

After referring to the fact that his family was in Plattsburgh and in good health, he goes on to say:

> I parted from them in Nov., expecting, ere this, to have been in Paris and not to have returned under 8 or 10 mos. But my arrival here with my Frenchman, and making known the extraordinary case, and my intentions of disposing of it, excited an intense interest, and desire among the faculty to have the subject taken up, and the experiments prosecuted first in our own Institutions. Such being the general feeling, I yealded to the solicitations and commenced a regular course of experiments under the ausperces of the Head of Department, and am now in full tide of success. I expect to remain here till April or May, when I hope to return in safety to my family.
>
> I may probably resume my intended tour to France another season. The results of my experiments this winter will determine that point, however.

This nullifies the usual statement "that when the time going and returning was taken into consideration, his leave of six months was too short to accomplish any definite results."

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A full account of Beaumont's court-martial and duel will be found in Myer's "Life and Letters of Dr. William Beaumont." It is too lengthy to be quoted here.

WASHINGTON'S MEDICAL KNOWLEDGE AND ITS SOURCES*

By WYNDHAM B. BLANTON, M.D.

RICHMOND, VA.

THE versatile Washington touched medicine in many interesting particulars. He saw and heard a great deal of the medicine of his day. He knew intimately most of the best doctors of his generation, and he acquired ideas of his own relating to the cause and cure of disease—perhaps no more than the average eighteenth century colonial planter, but he had a straightforwardness and simplicity in the use and expression of his medical knowledge that was rare at that period.

I. WASHINGTON'S MEDICAL KNOWLEDGE

From time immemorial the gentry of lowland Virginia spent their summers at the springs. When other measures failed the healing waters of mineral springs were always sought. In 1748 the sixteen-year-old Washington first "call'd to see y. Fam'd Warm Springs." In 1750 with his invalid brother Lawrence, and in 1761 suffering with fevers, pains and insomnia, he sought "what effect the waters may have upon me," adding, "I expect nothing from the air—this certainly must be unwholesome." He and Mrs. Washington went there in 1767, and two years later from the Springs he wrote: "I came to this place with Mrs. Washington and her daughter, the latter being troubled with a complaint, which the efficacy of these waters it is thought might remove. . . . "

Like most of his generation, Washington was a firm believer in blood letting. The rationale was simple. The cause of disease, peccant or morbific matter, had to be evacuated. Withdraw a little blood and the thing was accomplished. His life-long friend and counselor, Dr. Craik, tersely expressed it in a letter to Washington, then suffering from dysentery: "your disorder hath been of long standing and hath corrupted the whole mass of blood." What nurses, barbers and overseers could do, what every doctor supported by the authority of Sydenham did for nearly every disease, what was practiced on himself and on Mrs. Washington repeatedly, Washington did not hesitate to order on his own initiative. The occasion arose in February, 1760, at Williamson's Quarter, one of his plantations, when he found two of his negroes sick. Without more ado he directed them to be "blooded." In May of the same year his diary records: " . . . Lightning wch. had attended a good deal of Rain has struck my Quarter and near 10 Negroes in it, some very bad; but with letting Blood they recoverd." Washington's own fatal illness developed with alarming suddenness in the middle of the night. Before the physicians arrived the patient ordered his overseer to bleed him. The modest pint of blood then withdrawn initiated a series of hopeless phlebotomies.

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* Read before the Section of Medical History of The College of Physicians of Philadelphia, February 8, 1932.

With many of his friends along the banks of the James and the Rappahannock, and his neighbors on the Potomac, Washington had an abiding faith in the virtues of quinine. Writing to his secretary, Tobias Lear, in August, 1798, he cautioned: "If you have missed the ague care, and Bark is necessary to prevent a relapse. . . ." Not many days passed before he reported to his nephew Bushrod that Dr. Craik had "to dose me all night on Thursday with Bark." And Dr. Craik gave it in large doses and frequently. To two of Washington's nephews he administered 13 ounces in the course of a year. Bark was a popular remedy on Washington's plantations as frequent entries in his account books show.

Intestinal worms explained to the satisfaction of eighteenth century parents many otherwise inexplicable abdominal symptoms. Mrs. Washington expressed what was probably her husband's theory also when she wrote in a delightfully candid letter to Mrs. Lear: "I am sorry to hear by your Letter . . . that your little girl has been so ill . . . I have not a doubt but worms is the principle cause of her complaints. Children that eat everything as they like and feed as heartily as yours does must be full of worms . . ." Her own son, Jacky Custis, on one occasion developed "a pain in his stomack," at first taken for colic, but later satisfactorily explained as "owing to worms."

Washington believed firmly in the dietary cause of disease. Perhaps this accounts for his frugal breakfast of hoe cakes, honey and tea. To Congress he explained "the lamentable mortality that attended us last Campaign." He said: " . . . to devouring large quantities of animal food, untemper'd by vegetables or vinegar, or by any kind of Drink but water, and eating indifferent Bread . . . are to be ascribed the many putrid diseases incident to the Army. . . ."

Smallpox attacked Washington early in life, repeatedly visited his plantations and was all too common among his soldiers. He always exhibited a most energetic attitude towards this eighteenth century scourge. His Revolutionary correspondence with Congress, with the governors of the several states, and with his own subordinates, is full of very definite ideas concerning communicability, the need for isolation hospitals and "the amazing success" of inoculation. The prevention of smallpox in the Continental Army he assumed with the directness of one confident whereof he spoke. "I have been particularly attentive to the least symptom of smallpox," he wrote, and at another time: "I have therefore determined not only to inoculate the troops now here but shall order Dr. Shippen to inoculate the recruits as fast as they come to Philadelphia." He gave over the winter spent at Morristown to a general inoculation of the whole army. How different was the attitude of General John Thomas, who opposed inoculation, saw smallpox ravage his command and died of it himself. Other opposition was closer at hand. He had to keep the fact of Jacky Custis's inoculation from the anxious Martha until it was safely over, and he almost despaired of ever getting her to undergo the ordeal, declaring: she "talks of taking the smallpox: but I doubt her resolution." The deed was finally accomplished by Dr. John Morgan.

Washington considered the procedure a very simple one, claiming:

"The whole art" lies "in keeping the Patient rather low in diet, and cool, especially at the period of the eruptive fever . . . and my own People (not less I suppose than between two and three hundred), getting happily through it by following these directions, is no Inconsiderable proof of it." He berated the Virginia Assembly in no uncertain terms: "Surely that Impolitic Act, restraining Inoculation in Virginia, can never be continued . . . If I was a Member of that Assembly, I would rather move for a Law to compel the Masters of Families to inoculate every child born within a certain limited time under Severe Penalties." The influence of Washington in the prevention of smallpox in America was probably as great as that of Cotton Mather, Benjamin Franklin, or Thomas Jefferson.

For the common cold Washington seems to have had little concern, although he appears to have had many himself. To a suggestion of Colonel Lear's that he take something for a cold, he answered: "No, you know I never take anything for a cold. Let it go as it came."

There is little to show that Washington thought much on the philosophy of disease. To him it was a very simple process. Writing to his overseer about malingering slaves, he said: "Nobody can be very sick without having a fever, nor will a fever or any other disorder continue long upon any one without reducing them. Pain also, if it be such as to yield entirely to its force, week after week, will appear by its effects. . . . " Further light is thrown on his naïve conception of disease in another letter: " . . . the first stage of, and the whole progress through the disorders with which they [the slaves] might be seized (if more than a slight indisposition) should be closely watched, and timely applications and remedies administered; especially in the pleurisies, and all inflammatory disorders accompanied with pain, when a few days' neglect, or want of bleeding, might render the ailment incurable. In such cases sweeten'd teas, broths and . . . sometimes a little wine, may be necessary to nourish and restore the patient. . . . "

Washington was several times the victim of quackery. He sent a servant all the way to Lebanon, Pennsylvania, to a hex-doctor "celebrated for curing persons bitten by mad animals," and paid five dollars for "the prescription & application." In the case of Patsy Custis (Mrs. Washington's only daughter), whose illness had baffled most of the best physicians in the colony and whose fits were always sending messengers hurriedly for help, desperation led to the trial of a time-honored cure for epilepsy. Washington wrote in his diary on February 16, 1769, "Joshua Evans, who came here last Night, put an Iron Ring upon Patcy (for Fits) and went away after Breakfast." Two years later another expedient was tried and this time the diary records that "Mr. Jno. Johnson, who has a nostrum for Fits, came here in the Afternoon." Later the quack was paid fourteen pounds for his frequent visits.

II. PLANTATION MEDICINE AT MOUNT VERNON

Washington's medical knowledge was not derived from books. His library contained but nine volumes in any way relating to medicine. What he knew came out of the school of hard knocks, long and trying experience on the frontier, in war, on a plantation, and as a patient. His correspondence during the colonial wars is full of medical details of great interest. Throughout the Revolution he was a constant agitator for improvement in the troubled affairs of the medical department of the army. But no medical experience was like that he got at Mount Vernon where the health of several hundred dependents weighed heavily upon him.

"Agriculture has ever been the most favorite amusement of my life," he wrote. Except for the serious interruptions of war and the Presidency, he seldom varied from close application to the affairs of his landed estates. "I begin my diurnal course with the sun," said he, "I mount my horse and ride round my farms until it is time to dress for dinner." His greatest pride was to be thought the first farmer in America. At the time of his death he possessed 216 slaves and 51,000 acres of land, about 8000 in and around Mount Vernon, a typical Virginia plantation of the eighteenth century with its manifold activities and centralized authority.

Throughout Washington's writings there is a great deal to show his constant concern for the health of his slaves. The diaries alone contain sixty-four entries dealing with sickness on the plantation. To one of his managers he wrote in 1792: " . . . foremost in my thoughts" is the "desire you will be particularly attentive to my negroes in their sickness." And well he might be concerned, for the weekly report of the sick ending April 14 of that year showed:

Mansion House Farm, 6 sick with a loss of 21 days,

Muddy Hole Farm, 3 sick with a loss of 8 days,

Ferry and French's Farm, 5 sick with a loss of 20 days,

River Farm, 1 sick with a loss of 6 days,

Dogue Run Farm, 4 sick with a loss of 13 days, making a total of sixty-two days lost by approximately 20 laborers in the course of a single week.

For all serious diseases and accidents the overseers were instructed to send for physicians. From 1760 to 1765 Washington employed Dr. James Laurie to look after his people at £15 a year. From 1761 to 1781 Dr. William Rumney carried on the plantation practice under somewhat the same arrangement. Perhaps he had underbid his predecessor, for when Washington settled with him after the Revolution for seven years' services (1774–1781) he paid him £78. 10s., or about £11 a year. Washington wrote in 1775: "Doctr. Rumney came here in the Afternoon," and added that the next day he "visited the Sick, returnd to Dinner and stayed all Night." After the Revolution James Craik took over the practice and continued to be sent for on all occasions until Washington's death. Each of these physicians appears to have been the family doctor during the period he was employed on the plantation. "Doctr. Craik was sent for to visit Carpenter James and Cowper Jack. He also prescribed for a Child, Nat, over the Creek who was brought here." On another occasion "Doctr. Craik who had been sent for to a laying in Woman at the River Plantation came here after dark and stayed all Night." Taking meals and staying all night was a common failing with Washington's physicians.

All of the medical bills paid by Washington between 1772 and 1792 amounted to £482, an average annual outlay of approximately £23, a little more than $100, a ridiculously small sum for drugs and professional services to himself, his family, servants, and about 200 slaves. Somewhere on the Rappahannock tradition says the boy George accomplished the almost impossible feat of throwing a dollar over that broad river. His account books bear out the wit who observed that, if true, this was the only dollar he ever threw away.

And yet Washington spared no pains to give his servants what he considered the best medical attention. In August, 1799, Tom, suffering from cataract, was sent to William Baynham, the best surgeon in Virginia. The year before, Christopher, bitten by a mad dog, was sent all the way to Pennsylvania to a "specialist" in such accidents.

Obstetrics was a prominent feature of plantation medicine. From economic, if not humanitarian motives, it was important to get the women safely and quickly through childbirth. In 1763 Washington paid "Mr. Brasenton a pound for laying 2 women." After 1767 Susanne Bishop acted as midwife. She was the wife of Thomas Bishop, Braddock's servant, who had been employed at Mount Vernon ever since the death of that general. The midwife's fee was ten shillings and she was kept busy, as the account books show.

There are six references in the account books to the employment of negro doctors by Washington. Their fees were small and they were probably called in to treat only minor complaints, though several in this century in Virginia enjoyed wide reputations for their cures.

The principal drugs prescribed at Mount Vernon are to be found in the account books, where quantities of mustard, bark, camphor, sulphur, antimony, cream of tartar, glaubers salts, calomel, rhubarb and jalap are listed.

Considerable knowledge of medicine was not unusual among plantation owners. The witty William Byrd of Westover not only bled and physicked his people freely but actually presented a paper before the Royal Society: "On a Negro Boy that is Dappled on his Body in Several Places with White Spots," and Thomas Jefferson, another plantation owner with a respectable fund of medical knowledge at his disposal, practiced boldly upon himself and his "family." While president he personally vaccinated against smallpox all of his own slaves. "Our whole experiment," he wrote, "extended to about 200 persons." Washington possessed the erudition of neither. His understanding of medicine was not so profound. He made no parade of his knowledge. But when occasion arose he did not hesitate to put what he did know into practice.

Repeated entries in his diary show how closely he followed all cases of sickness on his plantations. He records the circumstances attending the biting of "my Servant Will" by a hound "appearing to be going Mad." Richmond's injured shoulder, William's fractured patella, the postillion's broken jaw are enlarged upon to the exclusion of the weightier matters of the day. A hospital was maintained near the mansion house and Washington made regular rounds of the sick on his estates. On one occasion he found "Cupid ill of a pleurisy at Dogue Run Quarter and had him brot. home in a cart for better care," and on another "Rode to my Plantatns. and ordered Lucy down to H[ome] House to be Physickd."

The best evidence of Washington's intense personal interest in the health of his slaves is to be found in his own account of smallpox as it occurred on Bullskin Plantation in Frederick County in 1760. Hearing "that small Pox has got among my quarters in Frederick determined therefore to leave town as soon as possible and proceed up to them." Finding two dead and two recovering and "everything in the utmost confusion," he engaged "Vall. Crawford to go in pursuit of a Nurse to be ready in case more of my People shd. be seized with the same disorder." The next day "Got Blankets and every other requisite from Winchester and settled things upon the best footing I could to prevt. the Small Pox from spreading, and in case of its spreading, for the care of the Negroes."

Years later Washington inoculated all his slaves.

III. WASHINGTON'S ILLNESSES

Sickness among physicians has inspired some of our best clinical observations, and intelligent patients rarely go through a protracted illness without acquiring considerable medical information. Washington's own understanding of disease was undoubtedly augmented by his repeated experience as a patient.

The record begins with smallpox, contracted in 1751 in the Barbadoes, whither he had sailed as nurse and companion of Lawrence Washington, a brother seeking a cure for pulmonary tuberculosis. It was a full month before he was able to get out. Parson Weems later observed: "it marked him rather agreeably than otherwise."

Although he consulted Dr. Halkerston professionally in Fredericksburg in 1754, his next serious illness did not occur until June, 1755. He was on the march with Braddock, glorying in the confidence of that general and anxious to play a creditable part in a victory that all expected. Suddenly he was beset with "violent fevers and pains" in his head, and to his chagrin had to be left upon the road. For nine days he fretted. Then he wrote "I was relieved by the General's absolutely ordering the physicians to give me Dr. James's powders (one of the most excellent medicines in the world), for it gave me immediate ease, and removed my fevers and other complaints in four days time." On the 9th of July Braddock suffered his great defeat. Of that day Washington wrote, "I attended him on horseback, very weak and low." On July 18, he wrote despondently to his mother, "I am still in a weak and feeble condition. . . . I fear, I shall not be able to stir till towards September."

Two years later this report of his health was forwarded to the Governor of Virginia: "For upwards of three Months past Colo. Washington has labour'd under a Bloody Flux, about a week ago his Disorder greatly increas'd attended with bad Fevers the day before yesterday he was seiz'd with Stitches & violent Pleuretick Pains upon which the Doct'r Bled him and yesterday he twice repeated the same operation." Four months later Washington wrote from Mount Vernon, "I have never been able to return to my command. . . . my disorder at times returning obstinately upon me, in spite of the efforts of all the sons of Aesculapius. . . . At certain periods I have been reduced to great extremity, and have now too much reason to apprehend an approaching decay." From this slough of despond he was rescued by a visit to

Williamsburg and the good offices of Dr. John Amson of that city. On March 18, 1758, three days after his arrival he acknowledged that he "was in a fair way of regaining" his health. But in December of the same year he arrived at Winchester from the capture of Fort Duquesne again "very much indisposed," so sick in fact, that he was not sure of reaching his destination in Williamsburg.

Less than three years passed before he was again the object of concern. This time acting on the advice of Parson Charles Green he set out for the Warm Springs. Reporting his arrival there he added: "I was much overcome by the fatigue of the ride and the weather together. However I think my fevers are a good deal abated, although my pains grow rather worse and my sleep equally disturbed."

A trip "northward to try the effects of our mountain air on my disorder" followed. He was back at Mount Vernon by September and in October wrote: "I have in appearance been very near my last gasp. . . . I once thought the grim king would certainly master my utmost efforts . . . thank God, I have now got the better of the disorder. . . . " He was only twenty-nine years old, and four serious illnesses had already threatened his life.

All went well until 1768. On March 3 his diary records: "Return'd home much disorderd by a Lax, Griping and violent straining." This continued for a week or more, Dr. Rumney making repeated calls. In September of the same year Washington was again under the care of Dr. Rumney, and in December consulted Dr. William Pasteur.

In 1772 Washington called on John Baker, itinerant surgeon dentist. From this time on he lost one tooth after another, and dentists were among the frequent visitors at Mount Vernon. Besides Baker there was Joseph Le Maire, who came over with the French in 1780, and Dr. Fendall of Alexandria. John Greenwood, a Revolutionary soldier and resident of Connecticut made at least two sets of his artificial teeth. Time forbids more than a reference to other early signs of "the growing infirmities of age," failure of sight (1778) and hearing (1793) and the tremor that was evident in his handwriting by 1787.

The record of Washington's health is silent until 1786. In August of that year he was apparently suffering from malaria. The diary reads for August 31: "Siezed with an ague before six Oclock this morning after having laboured under a fever all night. Sent for Doctr. Craik, who arrived just as we were setting down to dinner; who, when he thought my fever sufficiently abated, gave me a cathartick and directed the Bark to be applied in the Morning." September 1: "Took 8 dozes of the red bark to day." Dr. Craik continued to come and he to take bark until September 14.

Washington had scarcely taken up his duties in New York as President before Dr. Samuel Bard was summoned to incise a carbuncle of his thigh. The President's condition was so threatening that Dr. Bard refused to leave his side for days, and the elder Bard was called in consultation. Again Washington talked seriously of dying: "Do not flatter me with vain hopes. I am not afraid to die." Writing to Dr. James McHenry on July 3, 1789, Washington said: " . . . my health is restored, but a feebleness still hangs upon me, and I am yet much incommoded by the incision, which was made in a very large and painful tumor on the protuberance of my thigh. This prevents me from walking or sitting. However the physicians assure me that it has had a happy effect in removing my fever."

He felt the effects of the carbuncle for twelve weeks. Close on to this came a cold and conjunctivitis—he was always having colds—and then the most threatening of all his illnesses, pneumonia. In his own words: "A severe illness with which I was siezed the 10th of this month and which left me in a convalescent state for several weeks after the violence of it had passed; and little inclination to do more than what duty to the public required at my hands occasioned the suspension of this Diary." A month later he wrote to LaFayette: "I have a few days since had a severe attack of the peripneumony kind; but am now recovered, except in point of strength."

In June, 1793, Jefferson advised Madison: " . . . the President is not well. Little lingering fevers have been hanging about him for a week or ten days and affecting his looks remarkably." Woodward states that in 1794 Washington was operated upon for cancer in Philadelphia. In August, 1798, now retired to Mount Vernon, he had malaria. It was two weeks before his fever yielded to Dr. Craik, his assistants and the bark. In August, 1799, he was again sick, and Dr. Craik was again in attendance. It was in December that a cold and his final illness put the period to his life.

So much for the experiences of the sick bed.

IV. WASHINGTON'S MEDICAL FRIENDS

Washington's acquaintance among doctors exceeded that of any other American of his time. His diaries mention sixty-five physicians, most of whom visited him at Mount Vernon. Strange if he had learned no medicine from them.

In his own family there was Dr. David Stuart, husband of his stepson's widow. There was a strong liking between the two, an active correspondence, and the exchange of much political advice. Washington appointed him one of the first commissioners of the District of Columbia and bequeathed him "my large shaving and dressing table, and my telescope."

In the inner circle of his friends was James Craik. Craik just missed being the first White House physician. "I thank you," wrote Washington to McHenry, " . . . for the anxiety which you express, that I should have some person about me, who is well acquainted with my constitution, and who has been accustomed to my confidence. The habits of intimacy and friendship, in which I have long lived with Dr. Craik, and the opinion I have of his professional knowledge, would most certainly point him out as the man of my choice, in all cases of sickness."

Mount Vernon was only a few miles from Alexandria. Here lived James Craik and the plantation physicians who preceded him, James Laurie and William Rumney. Here also resided, in a house rented from Washington at sixty pounds a year, William Brown, physician general in the Continental Army and author of the first American Pharmacopoeia, and Elisha Dick, native of Pennsylvania, now health officer of the town. He was a consultant in Washington's last illness and read the Masonic service at his burial. Hard by lived the Reverend Charles Green, doctor of physic, clerk of

Truro parish, and Mrs. Washington's personal physician. All paid frequent visits to Mount Vernon.

In Fredericksburg Washington kept a desk in the apothecary shop of his friend Dr. Hugh Mercer. Here he transacted his business when on visits to his mother and sister. Here he also called on Dr. Lawrence Brooke, the surgeon of the *Bon Homme Richard* under John Paul Jones. Dr. Charles Mortimer was mayor of the town and the trusted physician of Mary Washington. At the close of the Revolution Washington was the honored guest at a ball at his house. La Fayette, Count d'Estaing and Rochambeau were there, and Washington danced with the sixteen-year-old Miss Maria Mortimer.

As a burgess Washington was often in Williamsburg, the colonial capital. Here again contacts with physicians were established, with Dr. William Pasteur, mayor of the town and one of the leading surgeons of the colony, with Dr. John De Sequeyra, visiting physician at the Hospital for the Insane, with Dr. John Amson, Dr. Peter Hay, and Dr. James Carter.

Washington during his brief residence in New York formed a lasting attachment for Dr. Samuel Bard, one of the founders of the College of Physicians and Surgeons. Bard once wrote his daughter: " . . . nothing can exceed the kindness and attention I received from Washington." He was planning a visit to Mount Vernon when the news of Washington's death reached him.

In the autumn of 1774 Washington arrived in Philadelphia with the other delegates to the first Continental Congress. There was the usual exchange of courtesies, with much wining and dining. The number of Philadelphia physicians now mentioned in the diary is surprising. The Shippens appear frequently. With Dr. William Shippen, Sr., then sixty-two years old but still enjoying a large and lucrative practice, he breakfasted, dined and supped on several occasions. Many honors had come to this eminent man, none more prized perhaps than that of being physician to the Pennsylvania Hospital. Washington, referring to an afternoon spent with him, wrote: "Dined at the old Doctr. Shippen's and went to the Hospital." There is reference also to his dining with "young Doctr. Shippen," the already distinguished young Edinburgh graduate who was later to be the director general of military hospitals in the Revolution. He dined with the venerable Dr. Thomas Cadwalader, still an influential citizen with a large practice and a reputation for his essay on the West India dry gripes and his advocacy of inoculation against smallpox. He dined with Dr. Thomas Bond, an old acquaintance, for he had consulted him professionally seventeen years before and paid him £4.6.8. He dined with Dr. John Morgan, a young man of promise, whom Congress was shortly to set over the medical department of the army to succeed the unfortunate Dr. Church. He was the guest of Dr. Benjamin Rush, then only twenty-nine years of age but already launched into a brilliant career, which was to take him to the height of his profession in this country.

In 1787 Washington attended the Constitutional Convention in Philadelphia. Again there was a round of entertaining in which his friends among the physicians took a prominent part. We find him in June drinking tea at Dr. Shippen's, and dining with Dr. Thomas Ruston, who in later years was a visitor at Mount Vernon. In July he called on the accomplished though somewhat eccentric Dr. Abraham Chovet, and was shown the anatomical figures which Chastellux had admired seven years before. A few days later he wrote: "About 12 Oclock rid to Doctr. Logan's near Germantown" and dined. This was Dr. George Logan, later United States Senator. The house, called Stenton, built by his grandfather, is still standing. The next day he dined "at Mr. Morris's and accompanied Mrs. Morris to Doctr. Redman's 3 miles in the Country, where we drank Tea and returned." Dr. John Redman, who had assisted in the organization of the College of Physicians, combated yellow fever and defended inoculation, and now retired from active practice. In September he dined with Dr. James Hutchinson, that dignified and charming gentleman who is said to have been fat enough to act the part of Falstaff without stuffing. This friendship doubtless began at Valley Forge, where Hutchinson inoculated more than 3000 soldiers.

An interesting entry in the diary at this time reads: "drank Tea, by appointment and partr. Invitation at Doctr. Rush's." That "particular invitation" sounds a little as if the air had not altogether cleared since the Conway Cabal. But time softens the bitterest feelings, and by 1788 Washington was occupied in planting at Mount Vernon mangel wurzel sent him by the same Dr. Rush.

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WHY I READ CHAUCER AT SEVENTY*

By JAMES B. HERRICK, M.D.

CHICAGO

THE title would more nearly represent the fact if it were changed to: "Why I read Chaucer at 69.732 years." Also, the three decimal places might, as in some medical papers, lend an appearance of scientific accuracy not warranted by the content. But I am not pretending to write with the accuracy of a Chaucerian scholar. I am merely a lover of Chaucer. As such I avail myself of what may be called poetic license and let stand the well-rounded, better sounding, figure of "seventy."

When I was nineteen years old I read all of the writings of Chaucer except his prose translation of Boethius on the "Consolation of Philosophy."

It was my teacher, Moses Coit Tyler, later the historian of Early American literature, who lured me into accepting his offer to excuse from the semester's examination any one of the class who would purchase, and retain the ownership of, the three volumes of the Riverside Edition of the poet's work and read their 1944 pages, nearly 50,000 lines of text.

I have never ceased being grateful to Professor Tyler for having induced me to do this. He led me to read a classic at an early age, when the impress of the author is apt to be lasting and when if that impress be pleasant the author remains a favorite.

I had to buy the three volumes. This helped develop the sense of ownership of good books. We may not all be possessed of the ecstasy of affection that impelled Charles Lamb to kiss an old folio, but the volume that we have read in our youth, that we have marked, that we own—it need not be a first edition or in elegant binding—is the one we cherish: like Chaucer we hold it in our hearts with a feeling of sacredness:

> On bokes for to rede I me delyte
> And in myn herte have hem in reverence.

Furthermore, I read practically *all* of the poet's writings. How by this rich contact one absorbs an author! How he soaks in! How, unconsciously, one grows acquainted not alone with his favorite words and expressions, his externals of style but with his character, his habits of thought, his varying moods! To many, I fear, Chaucer means only the Prologue to the "Canterbury Tales" with perhaps the Knight's Tale. This is as though one were to know Shakespeare through "Hamlet" or "Lear" but without "The Tempest," "Midsummer Night's Dream," "Henry the Fourth." To know an author well one must read much of him or all, if one can. There's the rub. Not every author will stand such complete reading. But Chaucer will.

So, in brief, why I now read Chaucer at seventy is because I read him at nineteen, read all of him and in volumes that I then purchased and still treasure.

This wise teacher did something more. After the class had studied in a somewhat critical way the Prologue, reading aloud and scanning, dissecting words and sentences grammatically, rhetorically and philologically, we were told to read by ourselves for pleasure, for the author's meaning and melody, and were assured that all these things were there—meaning, music, pleasure—if we read aright.

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* Read as an after-dinner address at the Meeting of the Association of American Physicians, Atlantic City, May 5, 1931.

Why is it that more do not read Chaucer if meaning, music, pleasure are there? There are three misconceptions that frighten readers away: the belief that his language is so archaic as really to be foreign; that his verse is crude and arrhythmic, and that Chaucer is, after all, but a simple-minded teller of more or less childish stories, many of them copied from the French or Italian, who attracted attention chiefly because he was chronologically the first noteworthy poet of England, but a writer who, if viewed impartially, is in no sense deserving of high rank.

May I say dogmatically that these notions are wrong? Chaucer writes in English. The application of a few elementary rules of old-English grammar, a short vocabulary of obsolete words, a glossary, preferably at the foot of the page, and his meaning is clear. "It is not in the nature of Chaucer to be difficult" says Quiller-Couch.

Apply a few rules of pronunciation, e.g. sound final *e, ed, es*—especially before consonants; make two syllables of the endings *cion, sion, tion;* be prepared to shift the accent to syllables nowadays unaccented, and his rhythm is easy, melodious and not tiresome. I would rather scan one hundred lines of Chaucer's Prologue than ten of some free verse I have tried to read. "There never was a better or more finished metrician" says Kittredge.

It is not difficult to read Chaucer in a well edited modern edition of which there are several. If one wishes a version with modern spelling, misleading accents correctly marked, and with substitution of modern words for those now obsolete, there are the excellent texts of Skeat and others. While some of the charm of the old English is lacking they are not translations or adaptations, they are really Chaucer.

That even while Chaucer was alive the texts were imperfect and that Chaucer was aware of the danger to his manuscript and reputation from blundering or over-zealous copyists, we know from his half serious, half playful verse to his copyist Adam—Adam Scrivener he calls him. If, he says, you ever have to rewrite my Boethius or Troilus may the scald (the salt rheum or eczema) light on your scalp unless you follow exactly the way *I* write my poetry. As it is now, many times a day I have to undo your work, to erase and change because of your carelessness and haste.

Chaucer's words unto his owne Scrivener:

Adam Scriveyn, if ever it thee bifalle
Boece or Troilus to wryten newe,
Under thy lokkes thou most have the scalle,
But after my making[1] thou wryte trewe.[2]
So ofte a day I mot thy werk renewe,
Hit to correcte and eek to rubbe and scrape;
And al is through thy negligence and rape.

But the explanation of why one at seventy reads Chaucer with delight is not complete when it is said that one gets music and meaning out of his lines and that one read from one's own volumes at an impressionable age all this author's writings. There must be something more, there must be the appeal of the writing itself. What is there in Chaucer that grips so strongly that one who has read him desires to read him again and again, never a year passing without at least a taste of him?

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[1] Making poetry.

[2] Haste.

First let me make two admissions. Not all of Chaucer makes this appeal. Surely few are attracted to reread the long prose tale of "Melibeus," the "Parson's Sermon," or the Translation of Boethius. The "Romance of the Rose" perhaps Chaucer did not write all of this and it is, besides, really a translation is in the main tedious, monotonous. Its few lines that reach high levels do not raise the average above mediocrity. Some of his allegorical poems are charming in spots but for the modern reader slow, digressive, more or less fantastic and artificial though it is true as Jusserand says regarding the "Romance of the Rose."

> The faults which deter us from it contributed to its popularity as did its merits; digressions, disquisitions and sermons did not inspire the terror they do now. 2300 lines of moralization, psychological analysis, abstract dissertations, delivered by personified abstractions did not weary the young imagination of the ancestors.

Furthermore, the fourteenth century was an age of leisure. There was time to read the few manuscripts. There were no printed books even up to 1400, the date of Chaucer's death. There was no speed mania in literature such as obtains today.

And the other admission. Some who read Chaucer do not take to him. This is not conclusive evidence against Chaucer's being a great writer, nor does it necessarily argue a lack of intelligence on the part of the reader. It may simply mean that tastes differ.

What are the elements of his greatness as a poet? Is he imaginative? Has he invention? Surely yes. Try to gather from his writings any historic facts of his time; a stray reference to the plague or to Wat Tyler's rebellion may perhaps reward you, but these references are few. Chaucer is dealing with types of men, not individuals, with qualities not things; he sees the world around him not as a chronicler but as a poet. His primary motive in portraying the Canterbury pilgrims was not to preserve for future generations the dress and manners of the 14th century but to make a striking artistic group of characters true to nature, poetic in conception. He is not the painter of the people of this particular century alone, but of all centuries past and to come. His men and women are the men and women of today; they are the men and women of Homer's time. Dress and manners may change but the hopes, fears, loves, hates, aspirations are in their ultimate analysis the same, and these Chaucer has described.

Then Chaucer is human. We must think of him as, or rather feel him to be, a man with senses, passions and thoughts the same as ours. Unless we do this we are likely to regard him as the average school boy regards Caesar or Cicero, as unreal, the deadness of whose language is somehow, through the memory drills and the grammatical analysis of the classroom, transferred to what is written and to the writers. We should not start in with this notion of Chaucer. In his best poems such as the "Canterbury Tales" and "Troilus and Cressida" he is describing persons of flesh and blood and he himself is real.

"He is the most modern of English poets," says Kittredge, "for he knew life and loved it and his specialty was mankind as it was and is."

When he got away from the bookishness of his French models where his work was largely that of a translator, when he shook off the Italian influence and became more nearly himself he became more human. He took from the French, the Italian, the ancients, especially the Latin, his plots, might translate freely from them but he now injected himself. Some call this characteristic, sympathy. By whatever name we call it, it pervades his writings.

He is possessed of marked simplicity without silliness. His tales and other writings are childish and simple as are Homer's in that they depict the nature and deeds of men in such plain, direct manner that they are understood of all. So simple, so unadorned that the surpassing knowledge and the consummate art back of it are concealed and one who reads is apt to exclaim as did Partridge to Tom Jones after he had seen the play of Hamlet, that there was not very much to it after all. Anybody under the circumstances would have behaved with the ghost or queen exactly as had the great actor Garrick. " 'He the best player!' cries Partridge with a contemptous sneer . . . 'In that scene . . . between him and his mother . . . why, Lord help me, any man, that is any good man that had such a mother would have done exactly the same.' " He was an artist who wrote deliberately for his effects. We are rarely conscious of his method, his technique. By practice he acquired the ability like a great actor to exercise his art with the effort concealed, the highest form of art. In this connection one may well read Kittredge's estimate of "The Dethe of Blaunche the Duchess" and the "House of Fame." He shows how these poems are carefully and artistically constructed and will stand the most critical analysis.

To realize this, to be conscious of his direct method of attack, his unaffected, simple style one has only to compare his work with that of his translators or modernizers. It will be recalled that Chaucer, during his life was renowned at home and abroad, the acknowledged greatest English writer of his day. This reputation endured for many years after his death. Then he was less read, was called an ancient writer, crude of speech, full of archaisms, a poor constructor of rhythm, a writer doomed to oblivion because no one could understandingly read him.

Our sons their fathers failing language see
And such as Chaucer is must Dryden be.

says Pope in his "Essay on Criticism" in 1711.

Then began many attempts to translate him. How these attempts failed, how the authors were woefully ignorant of their subject, how they were, most of them, neither scholars nor poets, how from the very nature of the task they were doomed to failure because Chaucer is untranslatable, how in fact they made a mess of it, is told in interesting and trenchant style by Lounsbury in the third volume of his "Studies on Chaucer." As late as 1841 there was published a modernization with distinguished contributors such as Wordsworth, Leigh Hunt, Elizabeth Barrett, which was a dismal failure. Dryden's adaptations in his "Fables Ancient and Modern," 1700, are conceded to be the best. But as

Lounsbury says, Chaucer's gold was made silver by Dryden.

Chaucer says:

> His banner he displayeth and forth rode.

Action in Chaucer's words, seen as clearly as in life.

Dryden:

> He waved his royal banner in the wind.

The vigor, terseness, dramatic element out.

In describing the scenes painted in the "Temple of Mars" occurs what has been called "the tremendous line" describing the treacherous assassin, the line that Lowell said "makes us glance over our shoulder as if we heard a stealthy tread behind us":

> The smyler with the knyf under the cloke.

Dryden tries to elucidate or improve this, perfect as it stands, and gives us this:

> Next stood Hypocrisy with holy leer
> Soft, smiling, and demurely looking down,
> But hid the dagger underneath the gown.

Chaucer rarely indulges in figurative language that is difficult of comprehension. Occasionally when he does, he humorously or with delicate ironic apology explains his meaning. Lounsbury illustrates this point by the following, of an entertainment:

> But sodeinly bigonne revel newe
> Til that the brighte sonne loste his hewe;
> For thorisonte hath reft the sonne his light;
> This is as muche to seye, as it was night.

And his rare sense of humor, almost never biting, inducing the object of his fun-poking to join in the laugh rather than resent the familiarity! In descriptive passages, in narration, even in the midst of the pathetic and the tragic, the humor may unexpectedly crop out and in some unaccountable way we are not offended, we like it. Chaucer's handling of humor is masterly and inimitable. In its way it is superior to Shakespeare's.

It is often coupled with satire that is so delicate and gentle that the victim is forced to smile at the aptness of the thrust even before he realizes that it is he himself who has been touched. Chaucer's humor cannot be called comic or burlesque. He is not a cartoon artist. Legouis refers to the restraint in emotion and satire alike, "no screams, no sobs, irony is softened to sly mischief, provoking a quiet smile rather than uproarious laughter." And with it all, and Dryden long ago pointed it out, he does not let himself be dragged into affectations that are commonplace, that spoil the humor and artificialize and cheapen the wit. Alliterations, antithesis, jingles, "conceits" are rare. It is said that he is guilty of only one intentional pun and one doubtful, perhaps accidental, one.

He is a prince of story tellers. "England has never had a story teller comparable with Chaucer in his power of visualizing all sorts and conditions of men and putting them on canvas for us in half a dozen strokes: No, not even Dickens is quite his match." Stranger still and against a general belief, he is not prolix. Events move. Unnecessary expressions are seldom employed. In a few words, and the right words, he can give us action or paint a most vivid picture of the appearance and character of a person or state a truth in epigrammatic form. Some of these epigrams sound strangely modern. Can one improve on these sentences by omissions, additions or substitutions?

Of the monk who loved hunting and good horses:

And, whan he rood, men mighte his brydel here
Ginglen in a whistlyng wind as clere
And eek as loude, as dooth the chapel-belle.

Of the friar:

His eyen twinkled in his heed aright
As doon the sterres in the frosty night.

The Clerk:

But al be that he was a philosophre
Yet hadde he but litel gold in cofre.

The Sergeant of Law:

No wher so bisy a man as he ther nas,
And yet he semed bisier than he was.

The Shipman:

With many a tempest hadde his berd been shake.

The Doctor of Physick—evidently the druggist and the doctor even in those days had an understanding:

Ful redy hadde he his apothecaries,
To sende him drogges and his letuaries,
For ech of hem made other for to winne
. . .
His studie was but litel on the Bible.

The Reve:

Ful longe were his legges and ful lene,
Y-lyk a staf, there was no calf y-sene.

Other examples:

And certeinly, ther nature wol nat wirche,
Far wel, Phisyk! go ber the man to chirche.

Full wise is he that can himselven knowe.

One eare it heard, at the other out it went.

Mordre wol out, that see we day by day.

Trouthe is the hyeste thing that man may kepe.

There is one unusual thing about Chaucer. He is ever present in his writings, whether he is telling a story, describing a scene, discoursing on astrology or predestination. His personality is not submerged or completely lost as is Shakespeare's. When Hamlet speaks it is Hamlet not Shakespeare who soliloquizes. When Palamon or Arcite or the Wife of Bath talk we realize that Chaucer is telling us what they say. And the marvel of it all is we are not offended. We are pleased. We are, as it were, sitting at a fireside listening to a tale told by one whose friendliness, good nature and evident interest in his subject attract and hold us. Note the merry twinkle of his eye as some delicate satirical comment falls from his lips or as he lets slip some quaintly turned phrase. Mark the quizzical look he gives you to see if you get the point when he tells how the wily friar, coming into the house on a cold day, drives away the cat and takes her place. You know at once that the friar found a comfortable seat near the fire.

And fro the bench he droof awey the cat,
And leyde adoun his potente and his hat,
And eek his scrippe, and sette hem softe adoun.

Note how he lays a little emphasis on the word *be* as he describes the scholar.

As lene was his hors as is a rake,
And he was nat right fat, I undertake.

Chaucer is not a deep philosopher, not a deep thinker. He is not to be compared with Shakespeare in his handling of the major passions. His touch is nearly always light. One cannot conceive of him as writing the "What a piece of work is man" speech. "For handling the majestic themes, the solemn verse of Dante, he had neither the language at hand nor the power to invent it. His whole temperament debarred him." (Quiller-Couch.) Yet one able critic has called him the greatest delineator of character save Shakespeare. And this means that he understands man, that he is in essence a philosopher.

He is not particularly interesting in argument, his exposition, often borrowed, is apt to be tedious. He is seldom lyric, rarely epic.

He excels, however, at times in the pathetic and there are elements of the dramatic, if one reads aright. The "Canterbury Tales," as has often been pointed out, might be considered a play with characters of striking individuality whose tales are long monologues, whose action and words in the interludes are in keeping with their nature and their station. Some of these characters, as Harry Bailly the host, and the wife of Bath, are as clear cut, as typical, as consistent, as Falstaff or Lady Macbeth. "The wife of Bath," says a writer, "is one of the most amazing characters that the brain of man has ever conceived." The Knight's Tale is full of the dramatic. "Troilus and Cressida" will stand searching study for its portrayal of character, its clear knowledge of psychology. It is a drama with humor, pathos, tragedy. It is almost a problem play, "one of the most nobly serious poems in our language." Legouis calls it the greatest English love poem until Shakespeare's "Romeo and Juliet." No two critics will agree exactly as to their estimate of the characters of Troilus, Cressida, Pandarus, Diomede any more than they do as to Hamlet or Shylock. The reason, the characters are drawn true to life. There is nothing of vulgarity in this poem though there is a love scene that would satisfy the most ardent of the modern realistic writers.

I wish Chaucer had not told so many obscene stories. We may excuse him largely because of the custom of the times; some blunt expressions were not as vulgar then as they are now. Also, as he himself says, the story and the speech must fit the person; the miller's talk is vulgar but "the miller is a cherl." You must not expect him to speak in polite language as does the Knight. The really unpardonable story is the one that the writer tells *because* it is obscene. In Chaucer's stories the obscenity is not the striking feature, it is the accompaniment of a good story. He is interested in the fun of it all. This raises Chaucer above the level of many so-called "smutty writers." Besides, he says if you do not relish the obscene story "Turne over the leaf and chuse another tale." But Chaucer was too good a judge of human nature to think that many of his readers would let their fear of being shocked by something immoral overcome their curiosity to see for themselves just how bad it was. We may venture the guess that all his readers took just a peek before they chose another tale. Perhaps it does not become us of the twentieth century to cast the first stone at Chaucer until we have considered well what the daily newspaper, the highest priced opera, the theater, the best sellers in fiction are putting before us. Perhaps if we stop to consider we shall be content to cast not a stone but a pebble and a very small one at that.

May I read to you a few quotations that illustrate some of these points to which reference has been made? I trust that by a pronunciation that is a cross between that of Chaucer's time and ours I can bring out the musical quality of his verse and make his meaning plainer without a complete loss of the charm that comes from what we commonly call his quaintness. And I may modernize a word here and there to make glossarial interpretation unnecessary.

As a sample of his descriptive power I read the words from the Prologue concerning the miller, realistic, making the man stand out before us, repulsive but life-like:

The Miller was a stout carl, for the nones,
Ful big he was of braun, and eek of bones;
He was short-sholdred, brood, a thikke knarre.[1]
His berd, as any sowe or fox, was reed,
And there-to brood, as though it were a spade.
Up-on the cop right of his nose he hade
A werte, and ther-on stood a toft of heres,
Reed as the bristles of a sowes eres;
His nose-thirles[2] blake were and wyde.
A swerd and a bokeler bar he by his syde;
His mouth as greet was as a greet forneys.
He was a janglere and a goliardeys,[3]
And that was most of sinne and harlotryes.
A baggepype wel coude he blowe and sowne,
And ther-with-all he broghte us out of towne.

Now see how in the interlude the miller's words and action are in keeping with his character as set forth in the Prologue. The Knight has told his tale of Palamon and Arcite in cultured manner as became the gentleman of the party. The host is delighted, the plan of a tale for each pilgrim is working successfully. He requests the Monk to tell the next story but the miller, by this time drunk, upsets the plan.

The Miller, that for-dronken was al pale,
So that unnethe[4] up-on his hors he sat,
He nolde avalen[5] neither hood ne hat,
Ne abyde no man for his curteisye,
But in Pilates vois[6] he gan to crye,
And swoor by armes and by blood and bones,
"I kan a noble tale for the nones,
With which I wol now quyte the Knightes tale."
Our Hoste saugh that he was dronke of ale,
And seyde, "Abyd, Robin, my leve brother,
Som bettre man shal telle us first another;
Abyd and lat us werken thriftily."
"By goddes soul," quod he, "that wol nat I;
For I wol speke, or elles go my wey."
Oure Hoste answerde: "Tel on a devel wey!
Thou art a fool, thy wit is overcome."
"Now herkneth," quod the Miller, "alle and some!
But first I make a protestacioun
That I am dronke, I knowe it by my soun,
And therfore if that I misspeke or seye,
Wyte it[1] the ale of Southwerk, I you preye;"

As an illustration of his power in the pathetic coupled with the tragic take the dying words of Arcite to Emily.

Allas the wo! allas, the peynes stronge,
That I for yow have suffred, and so longe!
Allas, the deeth! allas, myn Emelye!
Allas, departing[2] of our companye!
Allas, myn hertes quene! allas my wyf!
Myn hertes lady, endere of my lyf!
What is this world? what asketh men to have?
Now with his love, now in his colde grave
Allone, with-outen any compaignye.

It is said that this was one of Tennyson's favorite passages: "Allone with outen any companye."

The tragic: Chaucer in his dream represents himself as talking with John of Gaunt but as not understanding in the latter's many references to his lady, the Duchess Blaunche, that she was dead. So Chaucer casually but blunderingly asks the awful, the cruel question "where is she now?"

"Sir," quod I, "wher is she now?"
"Now!" quod he, and stinte anoon.
Therewith he wex as deed as stoon,
And seyde, "Allas, that I was bore!
That was the los, that her-before
I tolde thee, that I had lorn.
Bethenk how I seyde her-beforn,

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[1] Knot.
[2] Nostrils.
[3] Jangler and joker.
[4] Scarcely.
[5] Doff.
[6] As Pilate spoke in the Mystery Plays.

[1] Attribute it to.
[2] Sundering.

'Thow wost ful litel what thou menest;
I have lost more than thow wenest—
God wot, allas! right that was she!'"

"Allas! sir, how? what may that be?"

"She is deed!"
"Nay!"
"Yis, be my trouthe!"
"Is that your losse? by god, his is routhe!"
And with that worde, right anoon,
They gan to strake[1] forth; all was doon
For that tyme.

It is like "the rest is silence" in Hamlet, says one commentator.

For a bit of lively description, Tennyson copies it later, take this from the Cock and Fox, the Nun's Priest's Tale:

This sely widwe, and eek hir doghtres two,
Herden thise hennes crye and maken wo,
And out at dores sterten they anoon,
And syen the fox toward the grove goon,
And bar upon his bak the cok away;
And cryden, "Out! harrow! and weylaway!
Ha! ha! the fox!" and after hym they ran,
And eek with staves many another man;
Ran Colle, our dogge, and Talbot, and Gerland,
And Malkin, with a distaf in hir hand;
Ran cow and calf, and eek the verray hogges,
So were they fered for berking of the dogges
And shouting of the men and wimmen eek—,
They ronne so, hem thoughte hir herte breke.
They yelleden, as feendes doon in helle;
The dokes cryden, as men wolde hem quelle[2];
The gees, for fere, flowen over the trees;
Out of the hyve cam the swarm of bees;
So hidous was the noyse, a *benedicite!*
Certes, he Jakke Straw, and his meynee,[3]
Ne made nevere shoutes half so shrille,
Whan that they wolden any Fleming kille,
As thilke day was maad up-on the fox.

Here is a short specimen of his light philosophy.

We faren as he that dronke is as a mous;
A dronke man wot wel he hath an hous,
But he noot[4] which the righte wey is thider;
And to a dronke man the wey is slider.[1]
And certes, in this world so faren we;
We seken faste after felicitee,
But we goon wrong ful often, trewely.

Another view of Chaucer. He has lost his friends at Court, he is poor, stranded in a town outside London. Sitting in his room he gazes at his empty purse, no yellow color from gold, no chinking sound when he lets it fall on the table. He is strapped, shaved as close as a friar, he says. He addresses this humorous, pathetic, poetic complaint to his purse as to his lady love who has gone back on him. Some see bitterness in it. But surely it is not bitter; the philosopher who has seen so much of the world is still smiling and still fond of life.

To you, my purse, and to non other wight
Compleyne I, for ye be my lady dere!
I am so sory, now that ye be light;
For, certes, but ye make me hevy chere,[2]
Me were as leef be leyd upon my bere;
For whiche un-to your mercy thus I crye:
Beth[3] hevy ageyn, or elles mot I dye!

Now voucheth sauf this day, or hit be night,
That I of you the blisful soun may here,
Or see your colour lyk the sonne bright,
That of yelownesse hadde never pere.
Ye be my lyf, ye be myn hertys stere,[4]
Quene of comfort and good companye!
Beth hevy ageyn, or elles mot I dye.

Now purs that be to me my lyves light
And saveour, as doun in this worlde here,
Oute of this toune help me through your might,
Sin that ye wole nat been my tresorere;
For I am shave as nye as any frere.
But yit I pray un-to your curtesye;
Beth hevy ageyn, or elles mot I dye!

And these familiar lines epitomizing Chaucer's character, a lover and student of books, but a more devoted student of nature.

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[1] Proceed.
[2] Kill.
[3] Followers.
[4] Knows not.

[1] Slippery.
[2] Face.
[3] Note the imperative ending *etb*.
[4] Guide.

And as for me, though that I can but lyte,[1]
On bokes for to rede I me delyte,
And to hem yeve I feyth and ful credence,
And in myn herte have hem in reverence
So hertely, that ther is game noon
That fro my bokes maketh me to goon,
But hit be seldom on the holyday,
Save, certeynly, whan that the month of May
Is comen, and that I here the foules[2] singe,
And that the floures ginnen for to springe,—
Farwel my book and my devocioun!
Now have I than swich a condicioun,[3]
That, of alle the floures in the mede,
Than love I most these floures whyte and rede,
Swiche as men callen daysies in our toun.
To hem have I so greet affeccioun,
As I seyde erst, whan comen is the May,
That in my bed ther daweth me no day,
That I nam up and walkyng in the mede,
To seen this flour agein[4] the sonne sprede.
What hit upryseth erly by the morwe;
That blissful sighte softneth al my sorwe,
So glad am I, whan that I have presence
Of hit, to doon al maner reverence,
As she that is of alle floures flour,
Fulfilled of al vertu and honour,
And ever y-lyke fair, and fresh of hewe;
And I love hit, and ever y-lyke newe,
And ever shal, til that myn herte dye;
Al swere I nat, of this I wol nat lye,
Ther loved no wight hotter in his lyve.
And, whan that hit ys eve, I renne blyve,
As sone as ever the sonne ginneth weste,[5]
To seen this flour, how it wol go to reste,
For fere of night, so hateth she derknesse!
Hire chere[6] is pleynly sprad in the brightnesse.
Of the sonne, for ther hit wol unclose.
Allas! that I ne had English, ryme or prose,
Suffisant this flour to preyse aryght!

It may be asked why I have chosen a subject that is so old, so hackneyed. It is old but is it without present-day interest?

Many decades ago Lowell said, "Can anyone hope to say anything not new but even fresh on a topic so well worn?" But he said something new. In 1894 a professor of English at Yale wrote three volumes of brilliant studies on Chaucer. In 1913 a French professor wrote a discriminating critique of this poet. In 1915 a professor of English at Harvard delivered some splendid lectures on the Poetry of Chaucer. In 1922 the professor of English at Cambridge wrote two delightful essays on Chaucer. At the University of Chicago John Manly and his students as the result of years of study of the various manuscripts will soon publish what will undoubtedly be the most accurate text of Chaucer. The subject seems not exhausted. A few days ago John Masefield delivered at Cambridge the Leslie Stephen Lecture. His subject was "Chaucer." An old subject yes, but of perennial charm.

Perhaps I am old fashioned when I confess to a love for the rhythm, the music of the poet. I admit being attracted by his clarity, his naturalness and his simplicity. In these days of popularity of verse that is free to be written without rhyme, rhythm or clarity, whose meaning must be sought by reading and re-reading and which is so often, when found, like Gratiano's reasons, not worth the search, I am conscious of being reactionary. But I am in good company, at least it used to be called good company—Dryden, Wordsworth, Tennyson, Lowell, William Morris, to name a few.

I read Chaucer, then, at seventy because I read him at nineteen, because he appeals to me now as then by his kindly philosophy, his frendliness, his optimism, his ever-present humor, his pleasure in knowing and describing people, his skill as a narrator, his clarity, his love of nature and of books, his ability to make music of the early English language. Does any evil-minded critic hint that I read him *because* I am seventy? I might reply that I read him, I trust, not because I am in my second childhood but because Chaucer has helped to keep me young. He is a source of perpetual freshness and of youth. No hideous nightmare spoils the sleep after reading him, the blood pressure does not rise nor the arteries grow tense over his pages, no melancholy hangs heavy over one as one lays down his volume. No! black bile is dissipated. There are smiles, sunshine, contentment; the birds are singing, troubles are but light burdens, the world is worth living in, life is altogether good.

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[1] Know but little.
[2] Birds.
[3] Temperament.
[4] Towards.
[5] To west.
[6] Face.

NOTES

The quotations are from the text of Skeat.

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Mention might also be made of the painstaking work of MISS C. SPURGEON: Five Hundred Years of Chaucer Criticism and Allusion. 2 Vols., 1913.

PALEOPATHOLOGICAL EVIDENCE OF PAGET'S DISEASE*

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THE recent impetus in American archaeology is affording the pathologist an opportunity to study interesting pristine lesions which are virtually a prehistorical preface to our list of human ills. Although a number of monumental works on paleopathology have appeared, they have with but few exceptions presented little diversification of lesions. This paucity in variety of interesting lesions arises from the rarity of their occurrence and the difficulty experienced in the diagnosis of "dry bone" pathology. Osteitis deformans is generally considered to be a rare disease, only about 400 cases having been reported in the literature.[1] Clinicians, however, are of the opinion that it is much more frequent than is generally supposed, as quite a number of examples (especially of the monostatic variety) are found incidentally in individuals admitted to the clinics and dispensaries for the treatment of other diseases.

In this report we shall consider the paleopathological evidences of Paget's disease and the detailed evidence presented by five examples in prehistoric American Indian skeletons excavated from mounds in the region of the Illinois River Valley by the University of Chicago Archaeological Survey during the past three summers.

Osteitis deformans is a chronic disease of the bone, of obscure etiology, occurring usually in individuals over middle age. The regular osseous structure of the bone is resorbed, and new bone is formed on an irregular and less rigid architecture.[2] This description is perhaps equivocal, as it does not differentiate the condition from the typical or transitional stages of related diseases. However, this cannot easily be remedied under the existing conditions, especially when we realize that the name osteitis deformans has been applied to various types of osteitis, and even confused with the ubiquitous term of arthritis deformans.[3] Thus in the "Report on Human Remains,"[4] from the Archaeological Survey of Nubia, we find:

> Osteitis deformans therefore was the name given tentatively to the generalized condition of osseous affection known as Paget's disease, or osteomalacia chronica hypertrophica:[5] but osteitis deformans as it is used in this report, does not refer to this generalized condition, but rather to an extension of Virchow's arthritis deformans to the shaft of the bones themselves. [Further on they state] Osteitis deformans, arthritis deformans and spondylitis deformans are usually met with in association.[6]

Paget, however, clearly differentiated these conditions, and they quote him as follows:

> In the case that I have related the amount of chronic rheumatoid arthritis was trivial, and (which is more important) in all the records and specimens of arthritis which I have seen I have not found an instance in which there were

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any of the morbid changes characteristic of the osteitis.[7]

Aside from this controversy the only mention of osteitis deformans is in a single femur, accompanied by no illustration. In the atlas of plates appended to the "Report on Human Remains" I have been unable to discern any characteristics or features typical of this disease.

Neolithic evidence of Paget's disease is recorded by L. Pales, who discusses a single femur obtained from La grotte de l'Homme Mort, Lozère.[8] The bone presents characteristics which differ only in degree from those to be described in one of our own specimens (A8).

The skull of Eoanthropus (Piltdown man) from the Paleolithic period, has for some time been subjected to diagnoses of acromegaly and osteitis deformans[9] because of its unusual thickness. Hrdlička however takes little cognizance of this feature, considering it as "an individual or abnormal, rather than racial character."[10] But since the recent discovery of the excellently preserved skulls of the Peking Men (Sinanthropus pekinensis) which are similarly thick, and which present no evidence that the thickness is of a pathological origin, we must conclude that it is a feature common to these primitive individuals. As G. Elliot Smith says, these finds tend to "lend respectability" and normality to the former specimen.[11]

The bone changes in osteitis deformans are characterized in the active stage by softening, enlargement and bending. The softening is the result of a gradual decalcification of the original bone and its speedy replacement by connective tissue possessing osteogenic properties. Thus two processes, absorption and ossification, occur simultaneously, but the ossification, which lags somewhat behind the absorption and connective tissue advance, results in a finely porous, cancellous bone.

It is during this process that the enlargement occurs, as the osteogenic tissue tends to accumulate on the walls of the marrow cavity and under the periosteal envelope of the bone. The periosteum is involved, but does not react as in a true periostitis with the production of a dense new bone. Thus, in the long bones, there occurs a characteristic uniform thickening throughout the length of the cortex, produced by the two accumulative processes. The expansion takes place in all directions, the entire shaft elongates and becomes abnormally curved. The curving is enhanced by the superimposed weight and the limitation imparted by ligamentous attachments.

In the spine a similar series of bone changes occur, often resulting in collapse of the vertebral bodies and a definite narrowing of the vertebral foramina.

The skull is affected in most cases, the changes being most pronounced in the bones of the calvarium. Here a spongy bone tends to replace the normal architecture of the vault tables and diploë, resulting in a marked increase in thickness.

The disease presents several developmental stages. In the earlier stages, or during the active period, the bones show a generalized bending and thickening and are of a porous spongy nature, as described. In the more advanced or sclerotic (healing) stages the new bone presents a dense, eburnated mass, even encroaching upon the marrow cavity and narrowing it irregularly, or forming islets.

SPECIMEN NO. 1

Our first specimen is skeleton No.8 obtained from the Lookout Mound in Parker Heights Park, Quincy, Ill., during the summer of 1929. It is impossible to date the age of these remains exactly, but judging from the crude primitive nature of associated artifacts, and the characteristic type of flexed burial, we may safely estimate them to be prehistoric, in the sense that the culture had been influenced by no European contacts. The remains of this individual were in a very poor state of preservation, the ends of most of the long bones being badly broken or crushed, and the skull, flattened and completely disintegrated was discernable in the grave only by the difference in texture and color from the surrounding loess.

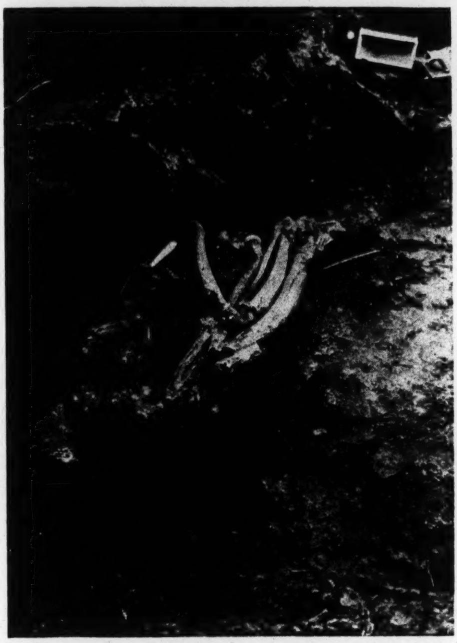

Fig. 1. Photograph of Skeleton No. A8, Quincy, Ill., in Situ. It is Apparently a "Bundle Burial" as Evidenced by the Position of the Bones. Note the Marked Curvature of the Tibiae and the Obvious Disintegration of the Skull, Seen in the Lower Left Corner.

This skeleton presents a generalized picture of the disease process as will be shown in the detailed description of individual bones, as follows:

Left Tibia. Unfortunately only the middle two-thirds of the shaft are present, but they are sufficient to show a rather marked anterior bowing and a slight lateral curvature. The entire surface of the bone is finely porotic, and on the medial aspect this is associated with a rough, corrugated appearance. Wavy lines of blood vessel depressions are quite numerous and well defined. On the posterior surface, in the region of the popliteal line there are marked diagonal ridges, and rows of low, broad osteophytes. The interosseous crest is thickened, elevated and divided into two portions in the middle third of the shaft.

Although the bone weighs approximately twice as much as a normal tibia, and the cortex is about 8 mm. in thickness, it is crumbly and friable. The marrow cavity is filled with a coarse, spongy bone.

Left Fibula. Only the lower two-thirds are present, and the bone is slightly larger than normal, with a cortex about 4 mm. in thickness. All ridges and regions of muscle attachment are greatly accentuated and nodularly hyperostotic. As in the tibia, the marrow cavity is obliterated by a coarse, spongy bone.

Left Femur. This bone presents a double curvature, anteriorly and medially, which involves the entire shaft. The surface of the bone exhibits increased porosity in the region of the neck and in the lower half of the shaft, the latter region being quite rugged and having many blood vessel depressions. The linea aspera is thickened, roughened and elevated. It is doubtful whether the femur presents abnormality in size, as we do not have the right femur with which to compare it. The epicondylar regions are badly damaged revealing beneath the breaks a spongy bone extending into the marrow cavity. The bone is also abnormally heavy.

Left Humerus. The shaft of this bone presents a general swelling, with marked accentuation and broadening of the deltoid tubercle and of the sulcus of the radial nerve. The surface in general is very irregular, roughened and corrugated and has numerous osteophytic nodules along the natural crests of the bone. A rather coarse porosity is seen near the articular ends and on the deltoid tubercle. The right humerus presents an almost identical appearance, and both bones have the marrow cavity obliterated by spongy bone as described.

Right Radius and Ulna. The radius is enlarged in the entire length, being bowed somewhat laterally and posteriorly. Surface porosity and blood vessel depressions are accentuated and the marrow cavity is obliterated by spongy bone. The distal articular surface is missing. The ulna presents a gradually increasing swelling beginning about 2.5 cm. above the distal end, and progressing upward to the proximal end of the bone. It possesses a mild anteroposterior s-shaped curve of the shaft. The surface and hyperostotic changes are similar to those described before, and the marrow cavity also shows the bony transformation of the fibrous marrow.

A number of the ribs and the right clavicle show an increase in size, surface porosity and osteophytic growths. The remaining bones of this skeleton were so disintegrated in the grave that it was possible to remove them only in fragments, preventing adequate study.

SPECIMEN NO. 2

The second specimen is skeleton No. w. 3 from Langford's Fisher Mound Group, near Joliet, Ill.[12] We have only the tibiae and fibulae, the humeri and skull. The long bones present pathological changes commensurate with those described in the previous skeleton. The skull changes, however, are of particular interest. The individual was a male of approximately eighty years. The upper jaw is edentulous, and the lower almost so, except for the right and left canines, the left first bicuspid, and the first and second right bicuspids (the last three teeth are missing, but the alveolar sockets are present, indicating postmortem loss). The coronal, sagittal and lambdoidal sutures are obliterated, except for a few millimeters at the periphery of each. In the right mastoid region the temperoparietal is also obliterated. Grossly the skull presents no abnormalities in size or shape except in the occipital and frontal regions. Here there are smooth irregular shaped depressions of about 1 to 2 mm. in depth, and of 3 to 4 cm. in diameter. In the frontal region these depressions tend to be confluent on the right side while there are three distinct depressions on the left. On the occipital surface there are five distinct depressions. There are no other changes in or around the surface of the depressed areas. The inner surface of the calvarium appears to be uninvolved.

The roentgenogram reveals a densely sclerotic calvarium in which the diploic architecture has been obliterated, and whose thickness averages about 9.5 mm. These features, coupled with those of the long bones, obviously suggest a very advanced stage of Paget's osteitis deformans.

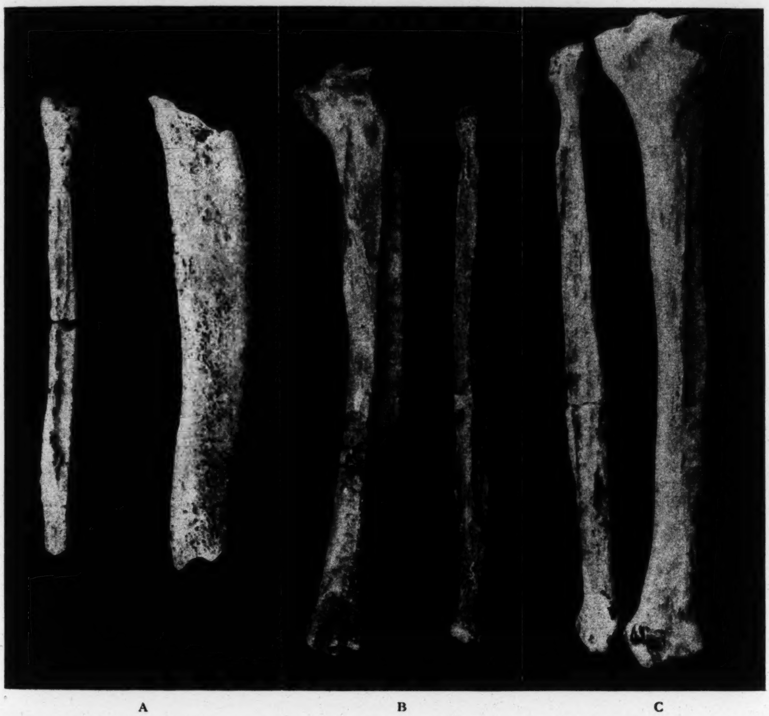

FIG. 2. (A) LEFT TIBIA AND FIBULA OF SKELETON NO. 8 (QUINCY, ILL.), (B) LEFT TIBIA AND FIBULA OF SKELETON W. 3, AND (C) RIGHT TIBIA AND FIBULA OF F. 14–76.

The three following skeletons were excavated by the University of Chicago Archaeological Survey during the summer of 1930 from mounds F 13 and F 14 (Fulton County) near Lewistown, Ill. The mounds belong to the last of the three known bluff cultures, which we believe to antedate the Columbian era by several centuries, and as they are post-Hopewell (*ca.* 2000 years old) may be estimated to date back 1000 years.

SPECIMEN NO. 3

Skeleton F 13–13, is that of female approximately sixty years of age, whose skull exhibits lumpy elevations and depressions over the frontal region, and to a lesser degree on the occiput, very similar to those described in skeleton w. 3.[13] The calvarium has a solid ivory-like appearance, an absence of diploic spaces, and an average thickness of about 11 mm. The tibiae, the fibulae and the humeri show various degrees of enlargement, surface and hyperostotic changes comparable to those described previously in similar bones, but little bowing.

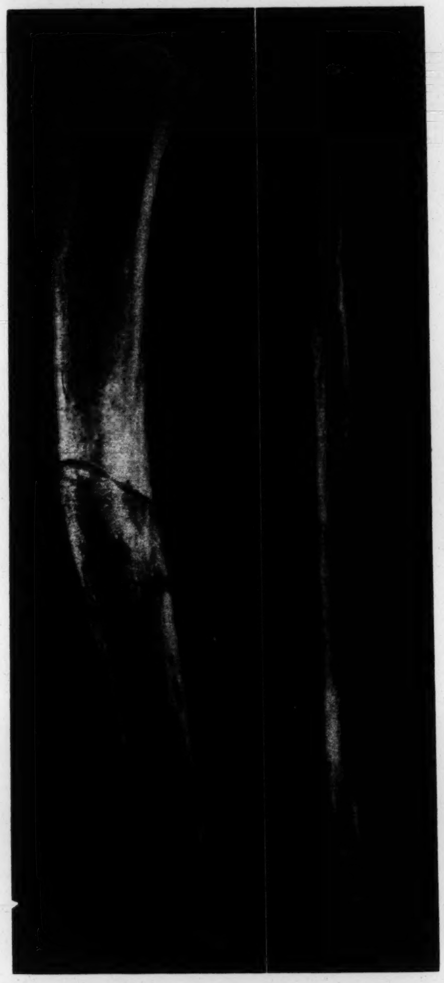

FIG. 3. ROENTGENOGRAMS OF LEFT TIBIA AND FIBULA FROM W. 3. NOTE THE BOWING AND NEW BONE FORMATION RESULTING IN INCREASED CORTICAL THICKNESS AND MARROW CHANGES.

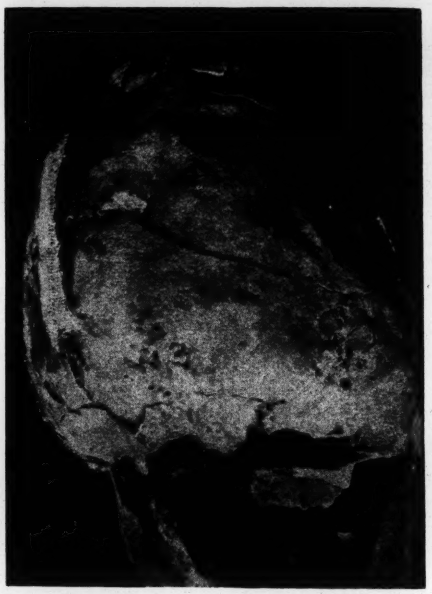

FIG. 4. POSTERIOR ASPECT OF SKULL W. 3, ILLUSTRATING THE MARKED OCCIPITAL DEPRESSIONS.

SPECIMEN NO. 4

Skeleton F 13–8 is of a male about fifty years of age, the long bones and skull of which are analogous in every detail to these specimens except for the calvarium, which is less deeply pitted.

SPECIMEN NO. 5

The last specimen, F 14–76, is of a male between sixty and sixty-five years of age. Only the distal half of the shaft of the right tibia and the entire shaft of the fibula are affected. The involved surfaces are rugged, porotic and particularly hyperostotic along the interosseous crests. In the fibula the cortex varies from 2 to 8 mm.; in places it is rarefied, producing hiati which lead into the medullary cavity. The latter is occupied by a coarse spongy bone.

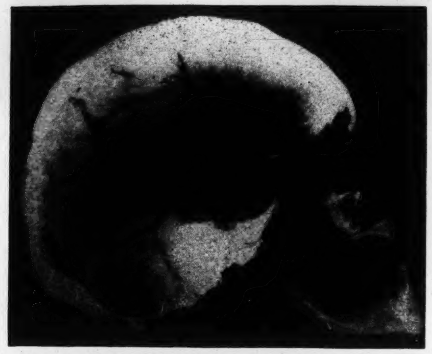

FIG. 5. ROENTGENOGRAM OF SKULL W. 3. THE ENTIRE CALVARIUM APPEARS DENSELY SCLEROTIC. THE DEPRESSIONS NOTED GROSSLY ARE HERE BARELY VISIBLE.

A particularly interesting feature is found in the medullary cavity of the tibia. It contains a number of concentric circular sheets of fenestrated bone connected with one another by a fine spongy trabeculation. These bony sheets occupy approximately three-fourths of the circumference of the medullary cavity, apparently arising from the medial side in the region of the interosseous crest. These sheets of bone become progressively closer together as they approach the inner surface of the cortex, and finally merge to form a part of it. No other bones of this skeleton present any noticeable changes, and curiously enough the roentgenograms of the specimen are less revealing than the gross observations.

These facts indicate that we are here considering an incipient Paget's disease of the monostotic (localized) variety, in which the distal end of the bone is most frequently involved.

DISCUSSION

The pathological cases described here must be differentiated from the related osteodystrophies, namely osteitis fibrosa and osteomalacia. The former occurs in younger individuals, more frequently attacks the femurs first rather than the tibiae, is associated with rarefaction of cortical bone and with cyst formation, which causes nodular expansion beyond the normal bone contours.[14] Cysts are occasionally found in osteitis deformans, but they do not produce expansion of the bone. None was evident in our specimens.

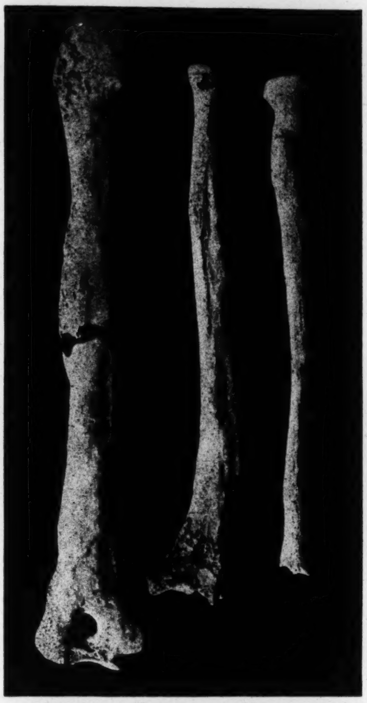

FIG. 6. HUMERUS, RADIUS AND ULNA FROM SKELETON NO. 8 (QUINCY, ILL.) SHOWING THE HYPEROSTOTIC CHANGES DESCRIBED IN THE TEXT.

Osteomalacia is a generalized mollifying process usually affecting all the bones of the body equally. It is characterized by a marked rarefaction, evidences of frequent pathological fractures, typical "beaked" deformity of the pelvis and other bones, a peculiar osteoporosis of the skull and a decrease in weight of the individual bones.[15]

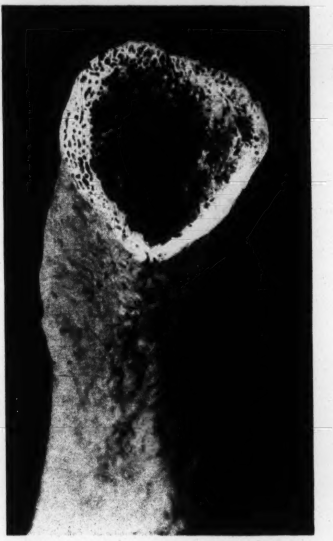

Fig. 7. Broken End of Tibia (f. 14–76) Showing Circular Fenestrated Sheets of Bone in Marrow Cavity. Note Hyperostosis along the Linea Aspera.

The various types of periostitis affecting the long bones, which at times may cause considerable difficulty in diagnosis, can be eliminated by a careful survey of the entire skeleton from both a morphological and a roentgenological point of view. Only in this way can such conditions as syphilitic periostitis and osteomyelitis be distinguished from the various stages of Paget's disease.[16]

Summary

This report presents the gross morphological changes and roentgenographical evidence of 5 cases of osteitis deformans in prehistoric American Indian skeletons from the Illinois River Valley region.[17] Four of these are of the generalized and one of the localized or monostotic variety. The salient features are: (a) in the long bones, primary hyperostosis, thickening of the cortex, bony transformation of the fibrous marrow, bowing in advanced stages due to increase in length, osteoporotic surface changes and a perceptible increase in weight; (b) in the skull (in our cases) increase in density, sclerosis of the inner and outer tables of the calvarium associated with some thickening, usually resulting in the obliteration of the diploic spaces,[18] and irregular elevations and depressions found primarily over the parietal and occipital regions.

These elevations and depressions appear to be formed during the involutionary or sclerotic stages, and so far as the author can determine they are an undescribed feature of the disease. We have seen them only in the calvarii of skeletons in our series obviously affected with an advanced osteitis deformans.

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1. Goldstein, H. J. Paget's disease of bone. *M. Times, New York*, 50: 279, 1922; 50: 321, 1922; 52: 56, 1924; 54: 194, 1926.
2. Sir James Paget's original description of this disease appeared in the *Tr. Med. Chir. Soc.*, 60: 37, 1877. (Illus.)
3. The term arthritis deformans is now considered as generic, embracing the three following divisions: (1) Osteoarthritis, characterized by peculiar changes in the articular cartilage, the synovial membranes and osteophytic formations at the ends of the long bones; (2) rheumatoid arthritis, of which the salient features are an absence of osteophytic lipping, erosion of articular cartilages and fibrous or bony ankylosis of the involved joints; and (3) spondylitis deformans, characterized by the ossification of ligaments (arbitrarily) limited to those of the

spine. For further discussion see R. L. Knaggs, The Inflammatory and Toxic Diseases of Bone. N. Y., Wood and Co., 1926, pp. 132–197; and E. Kaufmann, Pathology. Phila., Blakiston's Sons and Co., 1929, 2: 1238–1250.

4. Smith, G. Elliot, and Jones, F. W. Archaeological Survey of Nubia, Report for 1907–1908. Vol. 2, Report on Human Remains, p. 272. Cairo, Nat. Printing Co., 1910.

5. Von Recklinghausen, recognizing the malacic processes in both osteitis fibrosa and osteitis deformans termed the former a metaplastic malacia due to the pronounced destruction and connective tissue metaplasia, while in Paget's disease the increased bone production merited the term hyperostotic-metaplastic malacia. Kaufmann. *Loc. cit.*, p. 1109. Knaggs. *Loc. cit.*, pp. 320–327.

6. *Ibid.*, p. 273.

7. *Ibid.*, p. 272.

8. Pales, L. Maladie de Paget Prehistorique. *Anthropologie*, 39: 263–270, 1929.

9. Williams, H. U. Human paleopathology. *Arch. Path.*, 7: 6–7, 1929. Contains a brief discussion of this skull, and an account of Shattock's views, excluding the diagnoses given here and suggesting the possibility of rickets. Moodie, R. L. Paleopathology. Urbana, Univ. of Ill. Press, 1923, p. 348.

10. Hrdlička, A. Skeletal Remains of Early Man. Washington, Smith, Misc. Coll., 83: 89, 1930.

11. Smith, G. E. The Peking Man. Lect. Univ. of Chicago, Nov. 26, 1930.

12. Langford, G. The Fisher Mound Group, successive aboriginal occupations near the mouth of the Illinois River. *Am. Anthrop.*, 29: No. 3, July-Sept., 1927.

13. The region of the optic foramen and orbital fissures, where present, appear uninvolved in the skulls described. For modern cases so involved see R. Aeble. Optic atrophy in Paget's disease. *Arch. Ophth.*, vol. 5, 1930.

14. Denninger, H. S. Osteitis fibrosa in a skeleton of a prehistoric American Indian. *Arch. Path.*, 11:–939–947, 1931.

15. Only 2 cases of prehistoric osteomalacia have been reported: Moodie, R. L. *Surg. Clin.*, iv: 211, 1920; and MacCurdy, G. G. Human skeletal remains from the highlands of Peru, *Am. J. Phys. Anthrop.*, 6: 217, 1923.

16. Williams, H. U. An ancient syphilitic skull. Ann. M. Hist. 2: 523, 1930.

The origin and antiquity of syphilis: the evidence from diseased bones. *Arch. Pathol.*, 13: 779–814; 931–983, 1932.

The portions of these two references devoted to the differential diagnosis of the conditions under discussion merit careful study. Here will be noted also the overlapping and confusing nomenclature which complicates the differentiation of these seemingly related conditions.

17. A provisional example of osteitis deformans in the Pecos Indians from the southwest is recorded by E. A. Hooton, The Indians of Pecos Pueblo, A Study of their Skeletal Remains. New Haven, Yale Univ. Press, 1930, Chap. 10, p. 326. Catalogue No. 60255, sex doubtful, age 75–79. Diagnosis, "1. Spondylitis deformans. 2. Healed fracture with marked displacement and bowing of femur. H. U. Williams: 'probably osteomalacia; other alternatives osteitis deformans, rickets'."

18. It is difficult to say, whether or not, if at some time during the lives of the individuals, the calvarium reached the enormous thickness seen in some of our modern clinical specimens, and then underwent a regression to the sclerotic stage.

JEAN FRÉDERIC LOBSTEIN

THE FIRST PROFESSOR OF PATHOLOGY

By ALEXANDER BRUNSCHWIG, M.D.

CHICAGO

JEAN FRÉDERIC LOBSTEIN is entitled to a place in medical history because he was the encumbent of the first chair of pathology established in a faculty of medicine and because it was he who coined the words "arteriosclerosis" and "arteriectasia." A man of great intellectual capacity, his life was devoted to the development of his department of pathology, and to the teaching and practice of medicine. All those who came in contact with him soon learned to love the man and revere the teacher.

Lobstein was born in Giessen (Hesse) in 1777. His father, a native of Strasbourg, Alsace, was a Protestant minister and also occupied a teaching position in the University of Giessen. In 1790, the elder Lobstein returned to Strasbourg with his wife and five sons. The French Revolution was beginning and shortly after his arrival the elder Lobstein was arrested for alleged royalist sentiments. Death followed nine months' imprisonment. Jean Fréderic, seventeen years of age, was thus confronted with the problem of supporting his mother and four younger brothers. Having already begun the study of medicine he was successful in obtaining the appointment of "surgeon, third class," in the Army of the Rhine. There followed nine years of active service during which Lobstein had ample opportunity for first hand experience in military surgery. In 1799 he resigned his commission and formally graduated as Doctor of Medicine from the Faculty of Strasbourg, submitting a thesis entitled "On the nutrition of the fetus." Lobstein was then appointed "chef de travaux anatomiques" and prosector in the Faculty and later assistant and finally Chief Obstetrician to the Civil Hospital.

In 1813 Lobstein founded the Pathological Museum in connection with the Faculty of Medicine. Over a period of several years he devoted the greater part of his time and energy to its installation and development. The museum soon attained an international reputation, attracting visitors from all parts of the continent.

Perhaps in the sense of a reward for his work, but also due to the influence of Baron Cuvier, a chair of "Anatomie Pathologique" was established for Lobstein in 1819. This was the first time that the subject of pathology was raised to the dignity of a separate Professorial Chair. Thus, the first department of pathology was established. One has but to peruse the two reports published by Lobstein in 1820 and 1824 to realize that in some respects his department would not greatly suffer in comparison with some of our present day institutes. To be sure, bacteriology and cellular pathology were a long way off, however, a chemical laboratory was established "to enable the faculty and students to profit by the additional light that this science brings to pathology." Three hundred autopsies were performed each year, all of which were used for teaching purposes—the students being constantly urged to attend them. The museum, one of the most complete in Europe, comprised 3286 preparations of human and animal specimens, arranged and catalogued according to disease. The collection was open to students every day and to the public one day a week. Foreign visitors were always courteously received and "would be granted permission to visit the museum *upon their first request.*"

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* Material for this paper was obtained while the author was a Fellow in Medicine of the National Research Council, working in Strasbourg, France.

Once the work of organization of the pathological museum completed, Lobstein turned to other fields, not, however, in the least relinquishing his interests or endeavors in connection with his newly founded department. In 1824 he was also appointed "Professeur de Clinique Interne" and continued to fulfill the duties of both chairs during the remainder of his life.

Lobstein's interests were by no means limited to medicine. He greatly appreciated sculpture, painting, and classical music. The study of history and archeology was for many years his favorite recreation. This not only included bibliographic research but also field trips to various parts of eastern France. Lobstein, pick and shovel in hand, would take an active part in excavations for prehistoric remains. His personal findings on these excursions were preserved in his own private archeological museum. He was also reputed to have had a collection of some six thousand coins and medallions. It was said that he knew by heart the detailed history of practically every one of these pieces.

Lobstein was the author of numerous papers dealing with almost every field of medicine. Practically all of these however, were of ephemeral value. While obstetrician to the Civil Hospital he wrote a manual for the use of midwives. At one of the convocations of the Faculty he delivered an address in which he propounded a curious theory that morbid changes in various organs were the result of perverted nervous influence. His most important work, however, was the four-volume treatise on pathological anatomy written over a period of several years and embodying his extensive experiences in the autopsy room. It was in this work that he first used the word "arteriosclerosis," a term that has since become one of the most commonly used words in medicine and pathology.

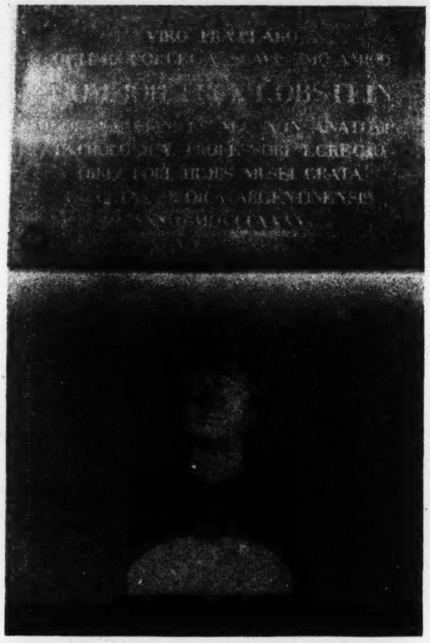

FIG. 1. MEMORIAL TABLET AND BUST OF PROFESSOR JEAN FRÉDERIC LOBSTEIN, 1777–1835. IN THE PATHOLOGICAL MUSEUM, FACULTY OF MEDICINE, STRASBOURG, FRANCE.

As a result of a urinary infection, death overtook Lobstein at the age of fifty-eight (1835) when still at the height of his intellectual capacities. The whole city of Strasbourg mourned the loss of her distinguished and beloved citizen. During the months that followed his death the programs of all public ceremonies and meetings of learned societies included a eulogy for Lobstein.

Many of his pupils attained prominence in the practice of medicine among them being the two Boekels who rose to international fame as surgeons of great skill and learning.

Lobstein's department of pathology has had an almost uninterrupted course since its foundation. After the annexation of Alsace-Lorrain by the German Empire in 1870, the Medical Faculty became a part of the Kaiser Wilhelm University of Strasbourg. Many new buildings were erected in the grounds of the old Civil Hospital. Among these was a magnificent institute of pathology. Von Recklinghausen was for many years its director and in this capacity may be considered a successor of Lobstein, although, of course not immediately following him.

Lobstein's museum was replaced by one installed by the Germans. This is the museum of the faculty at present and includes the large number of specimens which served as the basis for Von Recklinghausen's classical work on bone and peripheral nerve pathology.

Today the visitor to the pathological museum in Strasbourg will not find a single specimen attributed to Lobstein. However, in the main room he will see a dust-covered bust of the first professor of pathology and above it a tablet inscribed to his memory.

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NOTE

Dr. Gerald B. Webb, whose article on Robert Koch appeared in the November, 1932 issue of the ANNALS, wishes to call attention to the following error which occurred in his contribution: It was Emmy Fraatz, Koch's first wife, who presented her husband with a new microscope in 1874 after he had first discovered the anthrax spores. Emmy was the mother of Koch's only child and lived with him about twenty-six years. They were divorced in 1893 and Koch almost immediately married Hedwig Freiburg, an actress, and nearly thirty years his junior. Emmy Fraatz died in 1913.

PSYCHIATRY IN HISTORICAL RETROSPECT

By FORREST M. HARRISON, M.D.

BROOKLINE, MASS.

PART II. CONCLUSION*

AGE OF FEUDALISM

(1000 TO 1300 A.D.)

The next three hundred years witnessed the introduction and rise of the feudal system in Europe, and we have a period in the historical development of psychiatry which may be termed the Age of Feudalism. It extended from 1000 to 1300 A.D.

The condition of affairs in Europe during this era was little better than it was in the Dark Ages. The Church, with its spiritual appeal, its attractive symbolism, and its splendid organization, found it expedient and advisable to combine its forces with the state through feudalistic ties. As a result, all attempts at experimental science were suppressed. Men no longer cared to think for themselves or to discover things. They very much preferred to be told what to believe. This attitude was encouraged by the Church authorities, who represented power, and who depended for their easy existence upon the servility of the people at large. Obedience in intellectual as well as political affairs was demanded of everyone and was rendered by all as a matter of course. Those who by any chance made any real discoveries, and found that they contradicted the established authorities, either refused to publish their information, or even believe their own senses, because of the almost certain prosecution that would follow. To believe blindly, without analysis, was considered proper, while to seek knowledge was a crime that the medieval Church, and her powerful governmental allies, stood ever ready to punish.

We hear a few individuals, however, crying out in the wilderness, so to speak. One of the most interesting characters of this period, who lived in the eleventh century, was Constantinus Africanus. He was born at Carthage, visited Arabian schools, and traveled for thirty-nine years in the Orient. On returning to his own country, he was taken for a sorcerer, and was in danger for a time of losing his life. He fled to Salerno and entered court as a private secretary. He soon tired of this, however, and went into a monastery, Monte Cassino, where he passed his best years translating Arabian authors. Among his contributions to psychiatry may be mentioned his description of religious mania, his adherence to psychic therapy, and his insistence upon rational diversions for the insane. He died in 1087 A.D.

During the eleventh and twelfth centuries the fame of the Hippocratic City of Salerno spread throughout Europe, and the school which had been established there by Charlemagne, or the Saracens, or at any rate, by the Benedictine Monks, aroused the healing art, and infused new life into things. The Golden Age of Salerno may be put down as lasting from 1000 to 1200 A.D. Medicine, law and philosophy were taught.

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* Part I appeared in the November, 1932, issue of the ANNALS, vol. IV, No. 6, p. 565.

None of the Salernitan works rises much above the rank of compilation, but being founded on Hippocrates and Galen, they guarded the best traditions of ancient practice. Observation of patients in hospitals and clinical instruction were made use of in teaching, but no thought was given to psychiatry or mental diseases in any form. The city fell in 1194 A.D. at the hands of Emperor Henry VI who had a special grudge against it, and delivered it over to the tender mercies of a medieval soldiery.

This was also the great age of Scholasticism, a school of philosophy which had absolute belief in the omnipotence, bounty and wisdom of the Creator as revealed in His works. All portions of the Scriptures referring to the origin of man and the universe, the Biblical conception of demoniacal possession as the explanation of insanity, in fact, everything that happened was accepted unreservedly by the Scholastics as the truth, no proof or corroboration being required. Such an attitude could not but help retard the development of psychiatry.

During this era, Arabian physicians continued to dominate the medical world. Their theory and practice was based on the works of Hippocrates, Aristotle and Galen. They established hospitals, scientific institutions, academies of learning and great libraries at Bagdad, Cairo, Cordova, Damascus and Gondisapor. Their treatment of the insane, whom they regarded as divinely inspired, was much more gentle and humane than that employed by the Christians.

Actuarius, also called Johannes, lived in the thirteenth century. He supported the doctrines of the great philosophers and physicians of antiquity, and was considered by many to be the foremost psychologist of the Middle Ages. He located phantasy in the anterior and memory in the posterior part of the brain. He taught that these could be diseased separately, but if reason, which resided in the middle portion of the brain, happened to be disordered, the other two were affected also. His remedy for the psychoses was to regulate the body fluids, to live moderately, and to cultivate the intellect by means of music. He also advocated special diets, drugs of all kinds, purgatives and narcotics. His thorough studies were made at a time when scholasticism had begun to cloud the comprehension and the doctrines of physicians and philosophers.

In closing the discussion of the Age of Feudalism, it may be said that the thirteenth century, the last of this period, was one of the great epochs of human history, and may be likened to the Golden Age of Pericles. It has been well characterized by the trumpet call which summoned the Middle Ages into the modern world. Able and far sighted politicians inaugurated important developments in Church and State, while theology, philosophy, and science were furthered.

THE RENAISSANCE

(1300 TO 1500 A.D.)

Near the end of the Age of Feudalism the lights of reason began to shine again, as already indicated. On all sides there developed a new thirst and enthusiasm for classical literature, learning and art. In addition, that secular, inquiring and self-reliant spirit which characterized the men of ancient Greece and Rome made its re-entrance into the world. In other words, the period in history known as the Renaissance, which for our purpose we shall date from 1300 to 1500 A.D. was ushered in.

Many forces were operative in bringing about this great intellectual awakening. One of the foremost factors was the invention of gunpowder which gave the coup-de-grace to feudalism. The influence of the Italian cities in which there was nourished the same type of life that existed during the era of classical antiquity also helped a great deal. The chief promoters of the movement, however, were the so-called Humanists. They ransacked the libraries of the monasteries and the cathedrals, and searched through numerous out of the way places of Europe for old manuscripts of the early writers. The works of Hippocrates and others were translated, with the result that the ground was cleared of the accumulated rubbish of the past. The disasters which befell the Eastern Empire and which resulted in the fall of Constantinople and its capture by the Ottoman Turk sent many fugitives to Europe. This proved to be a great impetus to the unparalleled reaction that was taking place. The happy and timely invention of printing, however, was the thing that finally and definitely established the Renaissance.

Despite the revival of learning, culture, art and painting, medicine lagged behind. Psychiatry was particularly backward. During this era the mystics and the astrologers were in the ascendancy. The administration of medicine was controlled largely by the signs of the Zodiac. Witches were hunted down. Alchemy was beginning to play a role in the life of the people. The insane were treated by purging and bloodletting, the proper time for such measures being decided by the conjunction of planets or the lore of amulets.

Although very little, if any, progress was made, several hospitals for mental diseases were constructed during the Renaissance. Among these was the home for epileptics at the cloister of St. Valentine at Rufah, upper Alsace, which was built in 1486. The fact that it was an isolation hospital shows that this disease was still considered contagious.

THE REFORMATION

(1500 TO 1600 A.D.)

In the latter part of the fifteenth century Columbus discovered America and Vasco da Gama made his famous voyages in 1497 and 1498. These were but the beginnings of a new era in history. The sixteenth century witnessed the circumnavigation of the globe by Magellan, the conquest of Mexico and Peru, the birth of modern physics and chemistry, the struggle between Catholicism and Protestantism, and the great religious movement known as the Reformation, from whence this period derives its name. As a result of these epoch-making events, we have a century of unusual intellectual activity, and from 1500 to 1600 A.D., psychiatry, reacting to all these influences, made further progress and reached still greater heights.

The outstanding figure of this period was Andreas Vesalius, who inaugurated significant reforms in the study of anatomy. He demonstrated the physiology of muscle-nerve preparations, made observations on the skulls of the different races, and insisted that the cerebral activity of the lower animals was similar to that of man. He published his "De fabrica humani corporis" in 1543, in which he presented excellent cross sections of the brain and the nervous system.

Still others belonging to this period were Eustachius, who discovered the abducens and optic nerves, as well as the cochlea; Sylvius, who was the first to mention the Sylvian aqueduct; Fallopius, who described the trigeminal, auditory and glossopharyngeal nerves; and Varolius, who made capital investigations of the nervous system, calling attention to the cruri cerebri, the commissures and the pons.

These contributions to anatomy were of significance to psychiatry because they led to a better understanding of the structure and functions of those organs which were directly concerned in mental diseases. They finally brought about the so-called physiological conception of insanity at a later date.

Despite these advances on the structural side of the subject, however, nothing was done to alleviate the actual suffering of the insane. They were still chained, starved, beaten and otherwise maltreated. It is interesting to note in this connection that in 1547 the monastery of St. Mary of Bethlehem at London was converted into a hospital for the insane. This institution was popularly known as Bedlam, and in a few years, sad to relate, it was amply justifying its name and reputation as conveyed in the term.

ERA OF INDIVIDUALISM

(1600 TO 1700 A.D.)

The seventeenth century was an era of individual effort and endeavor rather than one characterized by the concerted advancement of science.

Felix Plater was one of the foremost men of this age. He made a real attempt to classify mental diseases, described psychoses in a variety of patients, and urged the humane treatment of the insane.

Jean Baptiste von Helmont taught that the generic fluid which radiated from men could be guided by their wills to influence the minds of men. William Maxwell in 1679 propounded the theory that all diseases, including the psychoses, were due to a withdrawal of vital fluid from the organs of the body and could be remedied by restoring the necessary magnetic forces. Athanasius Kircher also described the curative power of magnetism. These various ideas and conceptions marked the beginning of hypnotism and played an important role in the development of psychiatry at a later date.

Th. Bonnet insisted that insanity was a pathological alteration of the functions of the body, and paid no attention to demons, magic and miracles, as far as the psychoses were concerned.

Thomas Willis classified the cerebral nerves, described the circle of Willis, taught that the cerebellum was the center of the vital activities, mentioned the entity myasthenia gravis, and published numerous works on nervous diseases, which contained many striking clinical pictures, of which general paralysis was the most important.

Thomas Sydenham, 1624 to 1689, is the father of modern clinical medicine. He made keen observations and careful records. He published his "Dissertatio epistolaris" in 1682, which is famous for its classic description of hysteria.

Daniel Sennert was unable to free himself from the then prevalent belief in witches, and he believed that maniacs evacuated stones and living animals, which were caused by all sorts of demons.

AGE OF SYSTEMS

(1700 TO 1775 A.D.)

The early part of the eighteenth century was characterized by the rise and fall of various systems and tedious and platitudinous philosophizing was the fashion of the day.

Following the work of the great Swedish botanist, Linnaeus, the naming of species spread from plants and animals to diseases. As a result classification of the psychoses ran riot. All varieties of species and sub-species were made of the particular delusionary and hallucinatory trend of the individual, so that a single patient might suddenly change his disease every few minutes.

George Ernest Stahl, who lived from 1660 to 1734, constructed a complete theoretical system, which was opposed to materialism, and which became the dominating principle of psychology and psychiatry during the eighteenth century. It has been called the theory of animism. It attributed to the soul the functions of ordinary animal life in man, while the existence of other creatures was left to purely mechanical laws. He explained the symptoms of disease as the effort of the soul, which he regarded as the motivator of life and the force of the human machine, and which he allocated to the nervous system, to rid itself of morbid influences. He and his pupils attempted to put their ideas into practice, but they were unable to do so, because there were no asylums for treating the insane. Although his theory of animism met with little acceptance during the life of its author, it represents a reaction against the empty formalism of the eighteenth century, and his psychotherapy is a connecting link between past and present.

Another physician belonging to this period was Robert Whytt. His book on "Nervous, Hypochondriacal, or Hysterical Diseases," which was published in 1764, was a real contribution to the current knowledge of neurology and psychiatry.

Among the English psychiatrists who flourished in the Age of Systems, none is more justly esteemed than William Cullen. He was a most eminent and popular Professor of Medicine at Edinburgh. He founded a comprehensive system, based on the new physiological doctrine of irritability, special importance being attached to nervous action. His classification of diseases was needlessly complex, although several of the main divisions are still preserved. He emphasized that in mental diseases the ultimate cause was endogenous; taught that insanity was not a visitation from without, but that its symptoms must be interpreted in terms of normal psychic functions; contributed much to the systematizing of the psychoses; stated that insanity was a morbid condition of the mind; and advocated as little restraint as possible.

Franz Anton Mesmer revived the hypnotic idea of Maxwell, Helmont and Kircher under the guise of animal magnetism. He held notorious seances in Vienna and Paris, but was forced to leave both places as a fraud, after being investigated. He was very spectacular, always appearing clad in a lilac suit, and waved a magic wand, with which he touched his patients, as they joined hands around magnetic tubs, which contained a mixture of hydrogen sulphide and other ingredients, and which were provided with iron conductors from which depended a ring for purposes of contact. Mesmerism is of importance in connection with the history of psychiatry because it introduced a new note into mental therapy, and it was partly responsible, at least, for psychic influence or the imagination becoming such a potent factor in the causation and treatment of the psychoses.

Only a few hospitals existed up to this time for the care of the insane, among which were St. Luke's in London, founded in 1751, and the Narrenthurm, or Lunatics' Tower, 1784, one of the show places of old Vienna. Here, as in ancient Bedlam, the public was allowed to view the patients, like animals in a menagerie, upon the payment of a small fee. They were exposed to the insults of the crowds and the mockeries of the curious and indifferent for whom the sight of their misery became an object of amusement and recreation. The Vienna institution has been described as a fanciful, four story edifice, having the external appearance of a large, round tower, but, on the inside, consisting of a hollow circle, in the center of which a quadrangular building arose, joined to the circle by each of its corners. The enclosed structure afforded residence for the keepers and surgeons.

As far as the treatment of insanity was concerned, there was absolute belief in drugs. If purgatives and emetics failed with violent cases, they came in for many hard knocks, designed to inspire fear. The patients were subjected to the most barbarous practices of the day, were treated as harmful and malicious creatures, and were imprisoned and confined with all sorts of criminals in unhealthy cells. They were given wretched food, forced to sleep on beds of straw, and were at the mercy of their keepers, who were very brutal.

HUMANITARIAN ERA

(1775 TO 1800 A.D.)

Towards the end of the eighteenth century a far-reaching humanitarian movement swept over Europe and awakened sympathy for all human suffering, even for the despised and degraded prisoners, slaves and lunatics. As a consequence, conditions as far as the housing of the insane was concerned were materially improved.

Actual priority for this movement belongs to Italy. Between the years 1774 and 1778, Vincenzo Chiarugi, assisted by Desquin of Chamberi, introduced new methods at the hospital St. Boniface in Florence by abandoning fetters and chains and encouraging patients to work, as well as putting into practice kindness and sanitary measures in their daily treatment.

At a little later date a demand for better methods in the handling of the insane was heard in England. The madness of George III, who was a victim of recurrent insanity from his twenty-seventh year in the form of maniacal excitement, brought home to the English people in a forcible manner the problem of the treatment of the insane, and aroused great feeling with regard to the management of the hospitals. His illness undoubtedly stimulated reforms in the British Empire, and resulted in the founding of the Retreat at York, and which culminated with the work of William Tuke at St. Luke's in London.

The chief impetus to the humanitarian movement belongs to Philippe Pinel, who entered upon his duties at the Bicêtre in 1792 in an era when France, crushed under the Reign of Terror, was left to the mercy of a few men who were eager to destroy their own species instead of aiding the infirm, diseased and insane. He undertook to go to these men at the risk of his own life, and acquaint them with the conditions of vice and crime and misfortune that prevailed in the handling of the insane. There was much opposition to him but he did not falter. After two years he finally succeeded in convincing the authorities that the true means of ameliorating the fate of the insane was to give them, on the one hand, medical treatment, and on the other, gentleness, kindness and justice. With much misgiving he was finally given permission to remove the chains from his patients, which he did. In addition, he placed them in hospitals under competent physicians and did away with the abuses of bloodletting to which they were subjected. The results were so gratifying that he was called upon to perform a similar service at the Salpêtrière a little later. In 1801 he published his treatise on mental alienation. It reflected the teachings of Cullen, but its chief importance and value lay in the fact that it embodied eight years of practical experience in the treatment of the insane and hospital administration. Standing as it does at the threshold of the nineteenth century, it opens the portal from which the modern science of psychiatry issues.

ORGANIC OR PHYSIOLOGICAL ERA
(1800 TO 1900 A.D.)

During the nineteenth century we see gradually being built up the idea of separate and different psychoses. This was preeminently the descriptive period, during which the alienists were busily engaged in collecting and describing the facts conceived to come within the domain of psychiatry, without any particular attempt to explain the phenomena observed. Research was directed mainly to the anatomy and physiology of the nervous system and our knowledge of these subjects increased at an extraordinarily rapid rate. As a result, there became evident a tendency to interpret all mental symptoms in terms of pathologic changes in structure, and the organic or physiological conception dominated the field.

Perhaps the actual founder of modern psychiatry was Reil, who not only is memorable for his treatise on the psychic treatment of the insane in 1803, and the establishing of the first journal devoted to mental diseases in 1805, but he also demonstrated that certain parts of the brain controlled definite portions of the body.

Esquirol, who succeeded Pinel at the Saltpêtrière, made further reforms in the housing of the insane, founded ten new asylums, and established the first psychiatric clinic in Paris in 1817, where it was possible for physicians to acquire a knowledge of the psychoses.

Heinroth, who drew his psychology from the Bible, was the last man to maintain a medieval religious point of view. He believed that the life of mental health was one of piety; that the etiology of madness was sin; and that a repentance and return to the fold constituted a cure.

The story continues with Calmeil, who elaborated on the description of general paralysis in 1826. Moral insanity was described by Prichard in 1835. Hill abolished restraint at the Lincoln Hospital in England in 1836. Ray dealt with the jurisprudence of insanity in 1839. Humane methods were advocated by Connolly in the same year.

Braid introduced the term hypnotism in 1841 and proved that the mesmeric influence was entirely subjective, no fluid passing from the operator to the patient, as claimed by Mesmer in the preceding century.

In 1843 he published his book on "Neurypnology or the Rationale of Nervous Sleep." His theories were later taken up by Broca, Charcot, Liebault and Bernheim, and became the true starting point of the French school.

Griesinger sounded the death knell of the moralistic psychiatry of Heinroth. Not only did his textbook, which was first published in 1845, banish all metaphysical theories as far as the psychoses were concerned, but it was an authority for thirty years, the final definition of the place of this specialty among the sciences, and its recognition as coordinate with other branches of medicine. He advocated the open door and the psychiatric clinic and followed the classification of Pinel and Cullen.

Parallel with the development of clinical psychology, there grew up a school of experimental or physiological psychology. Three names were outstanding in this field.

Rudolphe Herman Lotze, of Bautze, a medical student and graduate who went over to metaphysics and philosophy, was a pioneer in the investigation of unconscious states, and wrote many important works on analytical psychology, in particular, his "Psychology of the Soul."

Gustav Theodor Fechnor discussed the functional relations of dependence between the body and the mind, made experimental studies of cutaneous and muscular senses, pointed out the personal or egoistic nature of painful sensation, and in 1859 published his "Elements of Psycho-Physics."

William Wundt, Professor of Physiology at Zurich, made a series of isotonic curves produced by muscle under constant excitation which has been copied into practically every textbook since. By means of experiments, he interpreted normal individual reactions, reflex responses, and general behavior in terms of neural mechanisms. His great work on the "Elements of Physiological Psychology" was destined to go through six editions and to become the classic word in psychology. It has been superseded by no other until the present time.

It was Jean Martin Charcot who really laid the foundation for our present-day conception of mental disorder. In the year 1862 he became physician at the Saltpêtrière, where he created the greatest neurological clinic of modern times. Not only did he contribute many brilliant studies to general medicine, but he made important investigations of the localization of functions in the cortical motor centers of man, and left behind him classic descriptions of various diseases. His important work, however, was in connection with hysteria. He discovered that a pathogenic idea was capable of producing hysterical manifestations; showed that the pathogenic idea and the hysterical symptom could be favorably influenced by means of hypnotism, which latter he regarded as a neurotic condition akin to, if not identical with, hysteria. He emphasized the organic point of view, both as to the nature and the causation of hysteria, stressing the hereditary organic deficiency or degeneration of the brain as an essential requisite to its development.

Kahlbaum suggested hebephrenia as a separate disease process in 1863 in a study on the grouping of the nervous and mental disorders, and in 1869 he erected another type which he called catatonia of which later he gave a detailed monographic description.

Richard Krafft-Ebing is especially known for his highly interesting and detailed study which classifies and describes the various forms of sexual inversion and perversion.

Bernheim studied the scientific application of hypnotism and in 1891 published his book on "Hypnotism, Suggestion, and Psychotherapy." Together with Liebault he substituted verbal for sensory stimuli and his investigations led him to interpret hypnotism and the phenomena produced by it as the result of suggestion.

This brings us to Emil Kraepelin, of Neustrelitz, Professor of Psychiatry at Dorpat, Heidleberg, and Munich at different times. He may be said to be the last, and in a measure, the greatest of all descriptive psychiatrists. He is notable especially for his studies of dementia precox and his concept of manic depressive psychosis, which latter he unified into a comprehensive entity. He insisted that no adequate knowledge could be gained of a psychosis without a full account of its entire life history as to its course and outcome. He was responsible for many new and simplified classifications by a clever grouping of related varieties, and although he died without yielding to the advances of the more modern analytic psychology, the Kraepelinian concepts increased our knowledge of psychiatry, changed our point of view, and gave us a much broader understanding of mental disease. His many keen observations, his powers of analysis and expression, and his great scholarship set him apart from his contemporaries. His writings, too numerous to mention here, have been translated into English and several other languages.

ANALYTICAL OR PSYCHOLOGICAL PERIOD (1900 TO PRESENT TIME)

In the enthusiasm created by all these discoveries, it was confidently expected that the causes and nature of insanity would speedily be laid bare. These hopes, however, have not been fully realized, and the opinion has gained ground that, although the value of the descriptive method cannot be disputed, there is ample room for another avenue of approach to the problem of mental disease. This has been supplied by Sigmund Freud, who formulated a purely psychologic concept of the etiology, development and treatment of the psychoses. Under his leadership psychiatry has entered the so-called interpretative or analytical period in its growth and evolution.

It is impossible to go into a detailed discussion at this time of the Freudian doctrines and we can only mention some of the more important of his contributions to abnormal psychology. He introduced the concept unconscious and attributed to psychical events a rigorous determinism. He made a classic study of hysteria and other psychoneuroses, evolved a concept of anxiety neurosis, and offered an entirely new classification in this field. He traced the development of our sex life and discovered the significance and emphasized the importance of infantile and childhood sexuality, his profound studies in this field leading to his monumental monograph on this subject. His studies of dreams has helped a great deal in the interpretation of the neuroses. In his technique of psychoanalysis he has given us a means of exploring the unconscious and at the same time a form of therapy which in some cases is extremely valuable. He evolved many other theories and concepts, among them being that of the libido, the Oedipus complex, symbolism, conversion, compensation, sublimation, fixation, regression, the pleasure-pain principle and motive for conduct, the id, the ego, and a host of others. In short, he created a whole new psychology, applicable not alone to the study of the neuroses, but to the whole range of human thought.

During recent years, after Freud

showed the way, a number of important advances have been made. Pierre Janet formulated the concept of dissociation of personalities, described psychasthenia, and published his excellent and detailed study of hysteria. Jung gave us some new thoughts on schizophrenia, and his association tests, elaborated the concepts introversion and extroversion, introduced the idea of a collective or racial unconscious as well as an individual unconscious, and evolved a therapy that is a distinct advance over that of Freud. Adler, discarding practically all psychoanalytic teachings, believed that organ inferiority was the principal causative factor in the neuroses. Bleuler developed the idea of schizoid and syntonic personalities, gave us the concept ambivalence, introduced the general notion of autistic thinking, and made some excellent studies of dementia precox. Pavlov, who was awarded the Nobel prize in 1904 for his experiments, established the principle of conditioned reflexes. Watson founded a school of behavioristic psychology. Kempf endeavored to explain mental mechanisms in terms of the autonomic nervous system and introduced a mechanistic classification of the neuroses and the psychoses to conform with his psychology. Kretschmer correlated the organic with the psychologic, endeavored to show that physique determined character and the type of psychosis an individual might develop, gave us an excellent study of hysteria, and made use of biological instinctive reactions, emotional shocks, and a variety of other concepts in his highly original interpretations. White attempted to build up the biological aspect of psychiatry as well as a philosophical system of the subject.

The present-day analytical and interpretative psychiatry considers each individual as a biological unit, teaches that the understanding of a mental case involves an exhaustive study and analysis of the entire personality make-up of the patient from his earliest childhood to adult life, to say nothing of a careful consideration and balance of questions of heredity and environmental factors, as well as physical illness, and possible organic brain changes, and attempts to reduce the conduct exhibited by the psychotic to elements and terms that show the mechanisms involved and their meaning.

ERA OF MENTAL HYGIENE
(PRESENT TIME TO FUTURE)

Recently there has developed in psychiatry the so-called mental hygiene movement. With it the aim of the workers in this field has come to be the prevention of the neuroses and the psychoses. Child guidance clinics are in evidence all over the country and intensive studies are being undertaken of problem children, because it has been found that in the formative and flexible period of childhood sound habits of mental health can best be instilled and faulty ones corrected. Early mental disorders, personality defects and changes, and bad traits of disposition are being detected and treated, with a result that juvenile delinquency is at last being scientifically attacked. The social aspects of mental diseases are constantly being emphasized and those maladjustments which lead to crime and pauperism are being investigated. An attempt is being made to educate the public by surveys, lectures and periodical conferences, and it is to be hoped that in the near future courses in mental hygiene will be instituted in all medical schools.

CONCLUSION

This brings our study to a close. If the teachings of the present-day analytical psychiatry are followed and studiously applied, and if there is a widespread interest on the part of the community in the mental hygiene movement, civilization will rise to still higher achievements, and the psychoses and the neuroses will ultimately disappear in the rubbish heap of the world, and be sloughed off by mankind in its advance towards racial and individual perfection.

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[From Johannis Baptista: De Humani Physiognomania, Hanoviae, 1593.]

EDITORIAL

LUESIANA IN THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

EXHIBITED TO CELEBRATE THE 25TH ANNIVERSARY OF THE DISCOVERY OF THE SPIROCHETA PALLIDA*

A SPECIAL meeting of the Section of Medical History of the College of Physicians was held on November 9, 1931 to celebrate the discovery of the Spirocheta Pallida by Schaudinn and Hoffman in 1906. An exhibit on various methods used in the diagnosis and treatment of syphilis was arranged by Drs. J. A. Kolmer, E. Case, and G. W. Raiziss. In the evening, papers were read by Dr. J. F. Schamberg on "Is Syphilis America's Gift to the World?", by H. E. Sigerist on "Fracastoro and his Poem," and by Dr. John Stokes on "Schaudinn." There was also an exhibit of what Dr. Riesman has dubbed "Luesiana," consisting of rare books, portraits and other items of interest in connection with the history of syphilis.

Although Astruc's well known work in the 18th century and Vorberg's scholarly production on the origin of syphilis contain fairly large bibliographies, it was suggested that it might be of use to others delving in this field, as well as being perhaps of some interest to the general reader, to publish a list of the items exhibited. There is, of course, no implication that this aims in any way at being a complete bibliography of this vast subject.

I. Landmarks in the History of Syphilis.

a. Early Works Exhibited at the Meeting.

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* This list was compiled by Drs. E. B. Krumbhaar and V. C. Garner.

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Matthiole, P. A. Opusculum de morbo gallico, 1535. (See Morbi gallici curandi ratio, 1536.)

Oviedo y Valdez, Fernandez Gonzalez de. Historia natural general de las Indias Occidentales. Sevilla, 1535.

Phrisius, see Fries.

Rostinio, P. (Ed. A. M. Brassavolus) Trattato del mal francese, 1565.

Scanarolus, Antonius. [Disputatio de morbo gallico.] Bononiae [Benedictus Hectoris], 1498.

Schelling, Conradus [Schellig]. [In morbum gallicum.] [Heidelpergae, Fridericus Misch, 1495–6.]

Idem. In pustulas malas morborum. Ca. 1495 (Reprinted in Sudhoff's Erstlinge der Syphilisliteratur). Sudhoff maintains that this book describes clinical states strongly suggesting syphilis and lends support to the pre-Columbian theory of the origin of the disease.

Sennert, Daniel, et al. *Two treatises. The first of the venereal pocks;* wherein is showed, i. The name and original of this disease. ii. Histories thereof. iii. The nature thereof. iv. Its causes. v. Its differences. vi. Several sorts of signs thereof. vii. Several waies of the cure thereof. viii. How to cure such diseases as are wont to accompany the whores pocks. *The second treatise* of the gout. i. Of the nature of the gout. ii. Of the causes thereof. iii. Of the signs thereof. iv. Of the cure thereof. v. Of the hip-gout or sciatica. vi. The way to prevent the gout. Written in Latin and English. London, Cole, 1660.

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Thornton, Robert John. A Popular Treatise on the Venereal Diseases in Which is Exhibited All the Recent Discoveries and a *Certain Cure* for That Terrible Malady. London, Cox, 1815.

de Vigo, Jean. Le mal françois. 1514. Translation and comment by Alfred Fournier, Paris, Masson, 1872. Vigo was the first who wrote well about the venereal diseases, indicating their degrees, how to recognize them and the manner of radically curing them by means of mercurial inunctions, a discovery which we owe to Berengario da Carpi.

b. Later Landmarks Exhibited.

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Manardi, Joannes. De morbo gallico. Ferrara, 1525.

Materate, Petro Angelo Agatho. Scriptus, Patavii, Bertellum, 1564.

Montesaurus, Natalis. De dispositionibus quas vulgares mal Frãzozo appellant tractatus. (In: Sudhoff.)

Petri Martyris. Opus epistolarum, lib. 1, Cap. 68. Amsterdam, 1670. (Letter on Morbus Gallicus dated 1488?.)

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Scyllatius, Nicolaus (Scillacio, Niccolo). Opuscula. 46 Bl. Papiae, 1496.

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Torrella, Gaspare. Tractatus cum consiliis circa pudendagram, seu morbum Gallicum. Rome, 1497.

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Ashmead, Albert [Sidney]. On the Question Whether Pre-Columbian Syphilis in America Originated by Unnatural Practices with Female Llamas. St. Louis, 1909. (*Am. J. Dermat.*, v. 13, 1909.)

Beeson, B. B. Treatment of syphilis according to Jacques de Bethencourt. Extracts from French translation by Alfred Fournier, 1871. (*Arch. Dermat. & Syph.*, v. 14, 1926.)

Bloch, I. Der Ursprung der Syphilis. Eine medizinische und kulturgeschichtliche Untersuchung. Jena, Fischer, 1901–1911. (Bloch is the chief modern exponent of the Columbian origin of syphilis in Europe.)

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III. PORTRAITS OF SYPHILOLOGISTS.

EHRLICH, PAUL. (1854–1915).

Idem. (In the Treatment of Syphilis by Bresler).

FERNEL, JEAN. (1506–1588).

FORDYCE, JOHN. (1858–1925).

FOURNIER, JEAN-ALFRED. (1832–1914).

FRACASTORIUS, GIROLAMO. (1484–1553).

HOFFMAN, ERICH. (1868?–).

HUNTER, JOHN. (1728–1793).

HUTCHINSON, JONATHAN. (1828–1913).

RICORD, PHILLIPPE. (1799–1889).

SCHAUDINN, FRITZ. (1871–1906).

SUDHOFF, KARL. (1853–).

WASSERMANN, AUGUST VON. (1866–1925).

IV. Medal.

FOURNIER, JEAN-ALFRED. (Loaned by David Riesman, M.D.)

BOOK REVIEWS

A Bibliography of the Honorable Robert Boyle, Fellow of the Royal Society. By J. F. Fulton, M.D. (Oxon.) University Press, John Johnson, 1932.

Although the name of the Honorable Robert Boyle is familiar to all students of the history of science, but few realize the great extent and variety of the researches which he carried on so industriously, and many are quite unaware of what a "potential ferment" he was to his associates in the Royal Society and elsewhere in England and on the Continent. Although he contributed voluminously to scientific literature, but few of his writings are available to the ordinary reader, the "Sceptical Chemist" being the only one so far as we are aware which has been republished in recent years in popular form. In early manhood Boyle travelled on the Continent but by far the greater part of his life was passed in Oxford, and later in London, pursuing his researches in physics and chemistry with unexampled fervor and industry. When he died he was buried in the church of St. Martins-in-the-Fields in London. We may recall that in 1859 all the bodies were removed from the vault of St. Martins-in-the Fields and Frank Buckland searched among them until he found John Hunter's coffin and arranged to have it returned to Westminster Abbey. No one did the same for Boyle and at the present day no one knows where he lies. Boyle's first publication was of a theological character, "Some motives and incentives to the love of God," written when he was but twenty-two years old, of which there were a number of English editions, and also translations published in Latin, French and German. In subsequent years he published other theological treatises but none that achieved so great popularity. His first scientific publication in 1660, "New Experiments Physico-Medical touching the Springs of the Air," as Fulton says, established a wide reputation for its author. In it he proved that air had weight, and showed how by its compression near the earth it could support a column of mercury. A year later he published his most generally known work, "The Sceptical Chemist," which Fulton considers "one of the great books in the history of scientific thought, for it not only marks the transition from alchemy to modern chemistry but is a plea, couched in most modern terms, for the adoption of the experimental method." It is impossible to review all Boyle's writings recorded in Dr. Fulton's book, but from the medical point of view it is interesting to note that in 1684 he published a work on the "Natural History of Humane Blood," and another on the "Porosity of Bodies." The latter marks the beginning of the study of osmotic pressure, and on that account Fulton regards it as the most interesting to the physiologist of all Boyle's writings. In 1685 he wrote on "Specific Medicines" and a few years later, 1688, published a series of "Receipts sent to a Friend in America," which in 1692 was expanded into a book, "Medicinal Experiments; or a collection of choice remedies, for the most part Simple, and easily prepared." As Fulton says, "One should perhaps forget that he warmly recommended Paracelsus' receipt of pulverized human dung for sore eyes." Lastly may be mentioned Boyle's "Final Causes and Vitiated Sight" in which he records a number of ophthalmological case histories.

This monumental and most delightful bibliography of the works of a great scientist is rendered doubly interesting and important by the excellent notes which accompany the technical descriptions of the various works recorded. The tracing and elucidation of the numerous writings by Boyle must have been a most difficult task, as explained by Dr. Fulton in the preface. We cannot be too thankful that he persevered and carried his work to completion.

BIOGRAPHISCHES LEXIKON DER HERVORRAGENDEN ÄRZTE, D. LETZTEN 50 JAHRE. Lief. 1–5. By I. Fischer. Berlin, Urban and Schwarzenberg, 1932.

This is virtually an international Who's Who in medicine and allied sciences. The biographies are brief but adequate in most cases. America receives fair treatment. The reviewer is somewhat surprised to find the name of Arrhenius missing. Arrhenius, who died a few years ago, was not only the author of the theory of electrolytic dissociation but also wrote a book on immunochemistry, the outcome of studies on toxins and antitoxins. The book embodied his lectures given at the University of California in 1904.

Numbers 4 and 5 carry the biographies on from Garten to Kamoto. The sketches as in previous issues are brief but adequate. There are a few omissions—Jonathan Hutchinson, James B. Herrick, Ludwig Kast should have been included, but on the whole most Americans of note, a few also not of note, as well as Englishmen and other nationals of distinction find a place in the Lexikon.

DAVID RIESMAN.

50 JAHRE KONGRESS FÜR INNERE MEDIZIN, 1882–1932. By Georg Klemperer, Berlin. München, Bergmann, 1932.

Just four years older than the American Association of Physicians, its American analogue, the Kongress für Innere Medizin has an equally fine record. Its founder was the Berlin clinician, Ernst Leyden, and its first president Friedrich Theodor Frerichs. The inaugural meeting was made memorable through the demonstration by Robert Koch of the tubercle bacillus which he had shown but a short time before to the Berlin Physiological Society. It was this second demonstration that really carried the news of Koch's epochal discovery throughout the world. Only three of the 188 participants in the first congress are living: Aufrecht, Friedrich Schultze and Ungar.

The greater part of Klemperer's history is devoted to an instructive delineation of the progress of internal medicine in its main divisions during the last fifty years: infectious diseases, diseases of the circulatory, renal, respiratory and alimentary systems, nervous diseases, diseases of the blood and metabolism, the endocrine glands, and the cancer problem. Klemperer demonstrates a masterly knowledge of the literature of the last half century and thereby gives to the brochure a value not only for the members of the Congress but for all interested in internal medicine.

DAVID RIESMAN.

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Editor: FRANCIS R. PACKARD, M.D., Philadelphia

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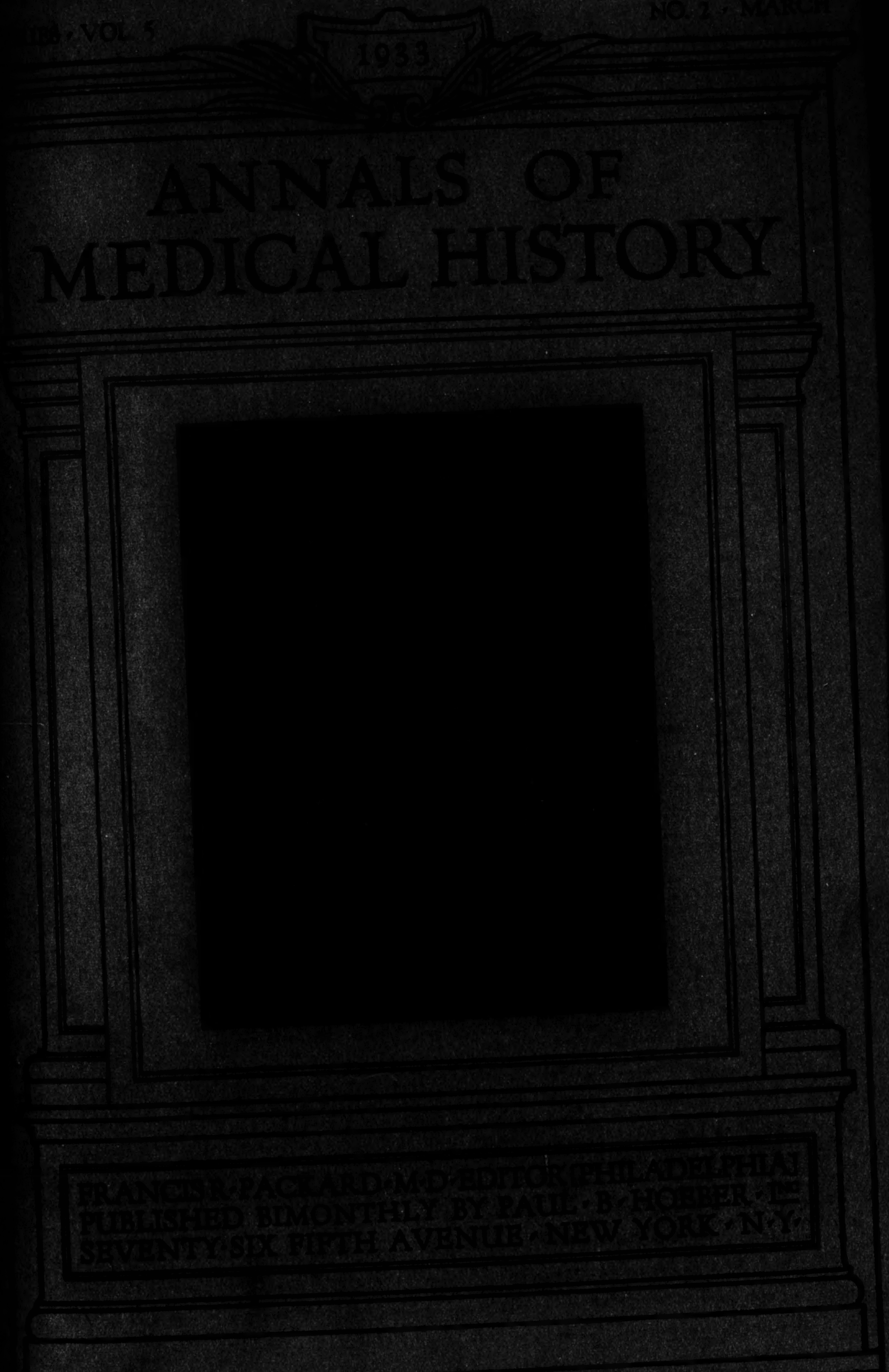

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